

NETGEAR®

Installation Guide

NETGEAR ProSafe Indoor/Outdoor 10 dB 2x2 Directional Antenna ANT224D10

Package Contents

- NETGEAR ProSafe Indoor/Outdoor 10 dB 2x2 Directional Antenna ANT224D10
- 2 lightning arrestors with 30 cm low-loss cables
- 2 reverse N/SMA adapters
- Wall mount and pole mounting hardware
- *Installation Guide* (this guide) and Warranty/Support card



Ground cable is not included but is required for outdoor installation. The grounding cable must be equivalent or better than: AWG 10, UL 1015, Stranded, 600 V, 105 C, green or green/yellow insulation, 2 clip of 5.5 mm inner diameter cramped at both ends, cable no longer than 5 meters. Antenna cables are not provided, but are required to connect to an access point (AP).

Note: For optimal results in extending wireless range, consult a qualified professional installer service.

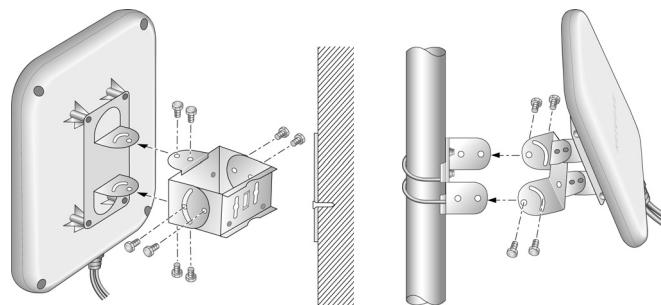
Antenna Placement and Location

Antenna placement dramatically affects potential coverage. Follow these guidelines to maximize coverage:

- Place the antenna in a vertical position, connector toward the bottom.
- Minimize the obstructions in the front of the antenna. There should be a good visual line of sight and maximum open space between the antenna and the other antenna(s).
- Outdoor point-to-point applications are bridging, repeater mode, or building-to-building. Mount the antenna on the top of a building on a pole or on an external wall. For building-to-building transmission you can also install antennas indoors within 10 ft. of clean windows (no metal coating) in both buildings facing each other. Account for 30-70 % less range than outdoors.

- **Indoor point to multipoint Warning:** The antenna is not omnidirectional and is not suitable for low ceilings, partial obstructions, walls, cubicles, or when large metal objects are present.
- For best performance with indoor installation, use a short cable between the antenna and the wireless device. Install the antenna so that it is a minimum of 50 cm (20 in.) away from people.

First, Mount the Antenna



Wall Mounting

Pole Mounting

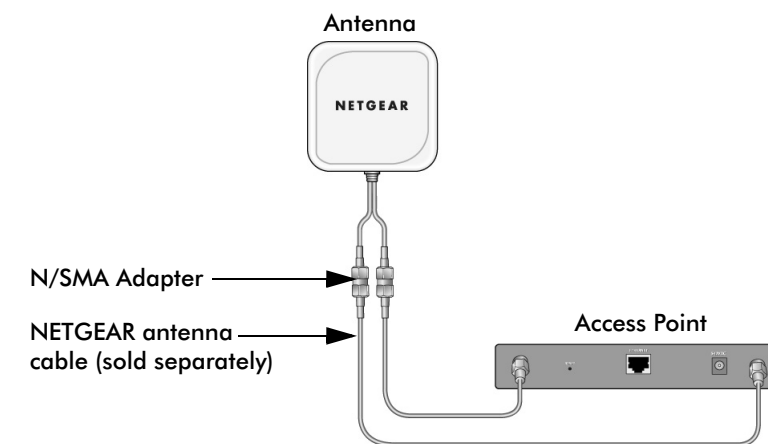
Antenna faces coverage area. Indoors, put it 2M+ from the floor and above cubicles. Do not install in IT rooms or rooms with metal partitions.

Then, Connect the Antenna

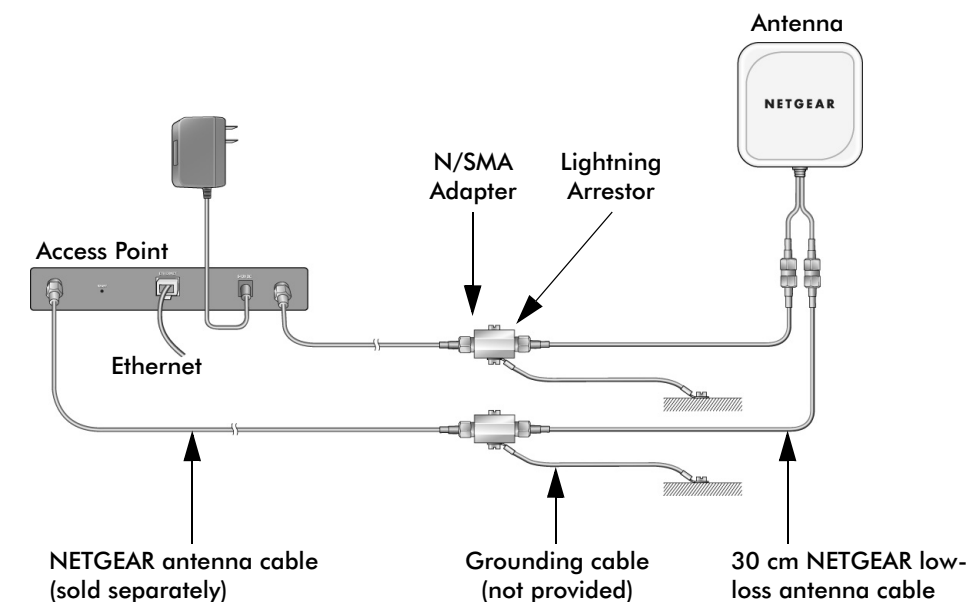
1. Turn off your wireless access point.
2. This step is only for outdoor installation. For indoor installation, go to step 3.
 - a. Connect a 30 cm cable (included) to the antenna and to an RF port on the lightning arrestor.
 - b. Connect the grounding cable (not included) from the lightning arrestor to the ground of the building.

Warning: The lightning arrestor and appropriate ground cable must be used for outdoor installation. NETGEAR does not assume any responsibility in case of hazard resulting of non-compliance.
3. Screw the N/SMA reverse adapter onto the lightning arrestor RF port.
4. Connect a NETGEAR cable ACC-10314-01, 03, or 04 (sold separately) to the adapter.
5. Locate the primary detachable antennas on the wireless AP. Remove the antennas and connect the other end of the NETGEAR cable to this port.
5. Reconnect your wireless device to the network and turn it on.

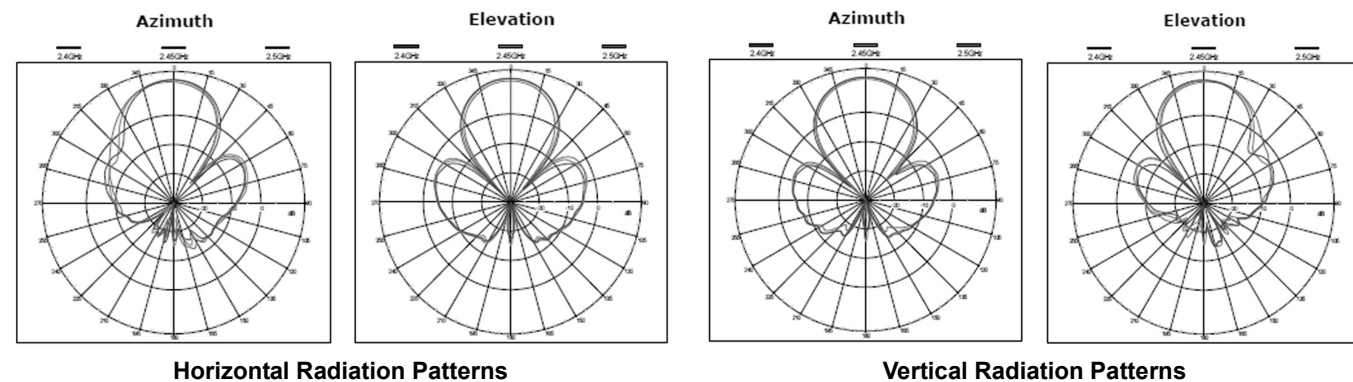
Indoor Connection



Outdoor Connection



Antenna Specifications		30 cm Cable		Lightning Arrestor Specifications	
Frequency range	2.4~2.5GHz	Frequency range	0 to 3 GHz	Frequency range	DC~6GHz
Impedance	50 ohm	VSWR	1.5 max.	VSWR	1.5 max.
VSWR	2.0: 1 max.	Cable type	HPF 195 Harbour Industries	Insertion loss	less 0.9dB
Isolation	at least 20 dB	Transmission loss	2.2 dB max @ 2.4 – 2.5 GHz	DC Spark Over Voltage 100V/S	184-276V
HPBW/H	33°	Connector type	2 N type male reverse	Gas Tube Insulation Resistance At 100Vdc	10 G Ohm max.
HPBW/V	32°	Max. working voltage	250 Vrms min.	Impedance	50 Ohms
Polarization	Linear; vertical	Minimum bend radius	25 mm (1 in.)	Insulation resistance	2,000 Megohms
Power handling	1 W	Jacket	FRPBC Black, 5 mm (0.195 in.) diameter	Capacitance 1MHz Pf current	less 1
Peak gain	10 dBi	Recommended coupling nut torque	229 mm.kg* to 559 mm.kg* (4.1 in.lbs to 10.0 in.lbs)	DC Holdover Voltage per ITU-T K.12	135V
Temperature	• Operating –30 to 80° C (–22 to 176° F) • Storage –40 to 85° C (–40 to 185° F)	Coupling nut retention force	22 kg* (50 lbs.) min.	Connectors	N type female reverse
Humidity	95% RH	Connector body and contact	Brass Per JIS H3250 C3604 BD, plated	Temperature	–40~85° C (–40 to 185° F)
Radome material	ABS	Insulation	PTFE Fluorocarbon per ASTM D 1710	Water proof	Rain resistant
Dimensions (l x w x h)	240 x 240 x 40mm (9.45 x 9.45 x 1.57 in)	Temperature/RH	Storage and operating –40 to 75° C (–40 to 167° F)/ 20 to 95% RH	RoHS compliant	Yes
Weight	700 gf (24.7 oz.)	Water proof	Rain resistant		
Connector	N plug reverse x 2				



Technical Support

Thank you for selecting NETGEAR products. Locate the serial number on the label of your product and use it to register your product at www.NETGEAR.com/register. Registration is required before you can use our telephone support service. Registration via our website is strongly recommended.

Go to <http://kbserver.netgear.com> for product updates and Web support. For Warranty and Customer Support information see the Customer Support card that came with your product.

Statement of Conditions

In the interest of improving internal design, operational function, and/or reliability, NETGEAR reserves the right to make changes to the products described in this document without notice. NETGEAR does not assume any liability that may occur due to the use or application of the product(s) or circuit layout(s) described herein.

Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

To comply with FCC regulations, the ANT32405 should only be used with devices that have been FCC approved for use with the NETGEAR ANT32405. Check the NETGEAR website at http://tools.netgear.com/legal/fcc_antennas.html for an updated list of FCC approved devices.

Note: This equipment has been tested and found to comply with the limits for Class B digital devices, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: (1) Reorient or relocate the receiving antenna; (2) Increase the separation between the equipment and receiver; (3) Connect the equipment to an outlet or circuit different from that to which the receiver is connected; (4) Consult the dealer or an experienced radio/TV technician for help.

FCC and EU Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. To avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna must be less than 20 cm (8 inches) during normal operation.

This device should not be co-located with other transmitters.

For EU, use of any antenna requires careful planning and extra considerations to comply with EU emissions and health standards and regulations. Antenna installation must comply with the maximum level authorized by each country.



This symbol was placed in accordance with the European Union Directive 2002/96 on the Waste Electrical and Electronic Equipment (the WEEE Directive). If disposed of within the European Union, this product should be treated and recycled in accordance with the laws of your jurisdiction implementing the WEEE Directive.

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