



NETGEAR®

500mW Bi-directional Booster

ANT24BNA

Power Injector

ANT24BDC



Installation Guide

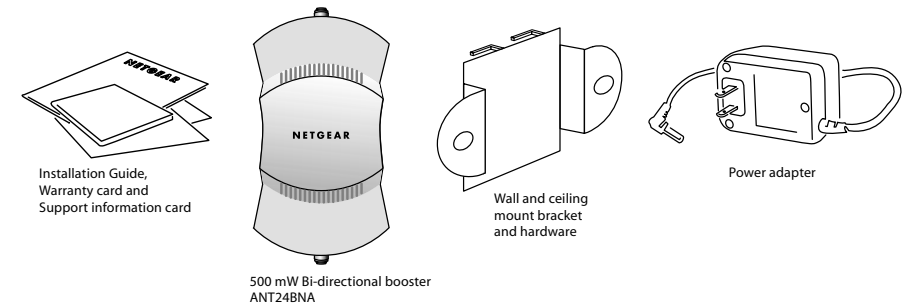
Introduction

This section introduces the NETGEAR ANT24BNA 500 mW Bi-directional Booster and the NETGEAR ANT24BDC 6 VDC, 1.5A Power Injector and related components.

The 500-milliwatt bi-directional power booster for the NETGEAR ME103 802.11b ProSafe Wireless Access Point increases the transmission signal from an average 50 mW to 500 mW and amplifies the signal by 10 dB (10 times) in receive mode. Use this when you want to maintain a single access point device to cover a larger area.

The ANT24BDC enables locating an antenna and a NETGEAR ANT24BNA booster more than 30 feet away from the wireless unit in a remote area where electrical power is not available. DC power is supplied to the booster through the antenna cable by means of the power injector. This eliminates the need to install extra wires. Moreover, unlike power over Ethernet devices, this configuration never needs to be reset.

The booster and power injector are part of a wireless system, including the access point, cables and antennas. According to FCC regulations, the booster can only be used with the wireless access point that is provided with it. Check http://www.NETGEAR.com/go/antennas_fcc for a list of approved devices.

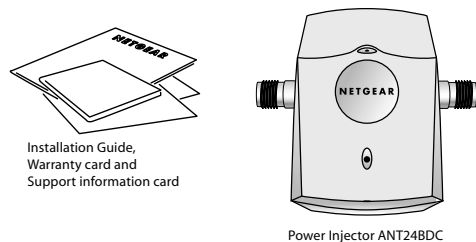


500 mW Booster Package Contents

The package should contain

- NETGEAR 500mW Bi-directional Booster for 802.11b ANT24BNA
- NETGEAR PWR-10015-01 DC power adapter
- Ceiling/wall mount bracket and hardware
- Installation guide
- Warranty card
- Support information card

Power Injector Package Contents



The package should contain

- NETGEAR 6 VDC 1.5A Power Injector ANT24BDC for bi-directional booster ANT24BNA
- Installation Guide
- Warranty card
- Support information card

If any of the parts are incorrect, missing, or damaged, contact your NETGEAR dealer. Keep the carton, including the original packing materials, in case you need to return the product for repair.

NOTE: To obtain optimal results in extending wireless range with antenna installations, it is recommended that a qualified professional installer service is consulted for site survey and proper installation.

Placement and Other Important Considerations

Observe the following guidelines when configuring your Booster for 802.11b. In order to comply with FCC regulations you must use NETGEAR antenna cables (ACC-10314-01, 02, 03 or 04) with these products. These antenna cables are low loss and are ideally suited for the NETGEAR booster, power injector and antennas. Performance (range) can be drastically reduced if longer or higher loss antenna cables are used.

- Place the ANT24BNA booster as close as possible to the antenna with a short NETGEAR antenna cable. The shortest FCC approved antenna cable is the NETGEAR 1.5 m (ACC-10314-01) cable.
- Place the longer NETGEAR cable (up to 10 meters) between the ANT24BNA booster and the access point. The overall performance will decrease if the length exceeds 10m.
- If you use a ANT24BDC Power Injector to power the booster remotely, follow these guidelines:
 - Use the longer NETGEAR antenna cable (up to 10 m) between the booster and the power injector.

- Use a NETGEAR antenna cable of no more than 3 m between the Power Injector and the access point.
- For optimal performance, the combined length of both NETGEAR antenna cables should not exceed 13 m. If the length exceeds 13 m, the overall performance will decrease.

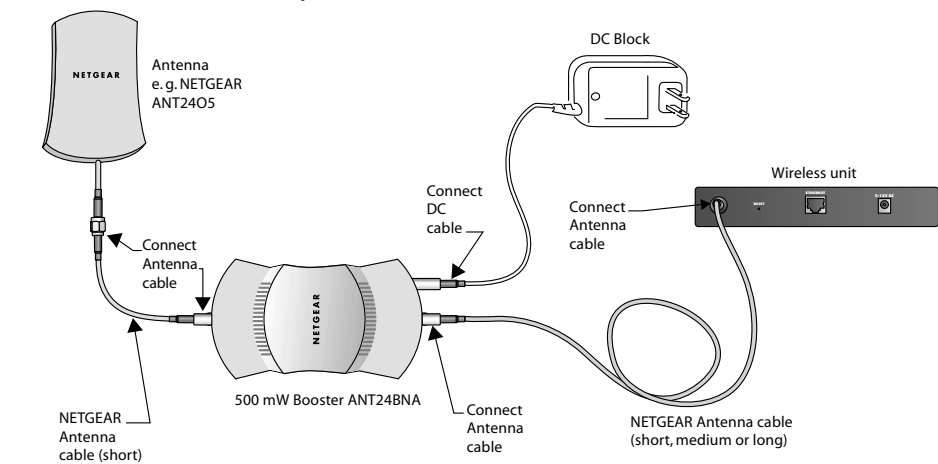
Antenna cables have intrinsic loss at 2.4 GHz which can decrease range performance. The longer the cable, the higher its loss. To achieve optimal performance, use the shortest antenna cable you can from the antenna to the ANT24BNA booster. Cable loss between the booster ANT24BNA and antenna in the transmit and receive functions cannot be compensated. However, the NETGEAR antenna cable between the ANT24BNA booster and the wireless access point can be as long as 10 m without performance reduction. By the same token, a 3 m NETGEAR antenna cable between the optional injector and wireless access point can be added without performance reduction.

In receive mode, the booster amplifies the signal by 10 dB with a low noise amplifier. This amplification can compensate for cable loss up to 10 dB (booster to wireless node only). In transmit mode, the booster accepts the 802.11b input signal as low as 5 dBm and amplifies it to 27 dBm (variable power amplifier). The typical output power of an 802.11b wireless node is 15dBm or more. So, there is a 10 dB margin to fully compensate for cable loss. The loss in the cable between the booster and the wireless node only can be completely compensated in transmit and receive mode up to 10 dB loss without any reduction of performance.

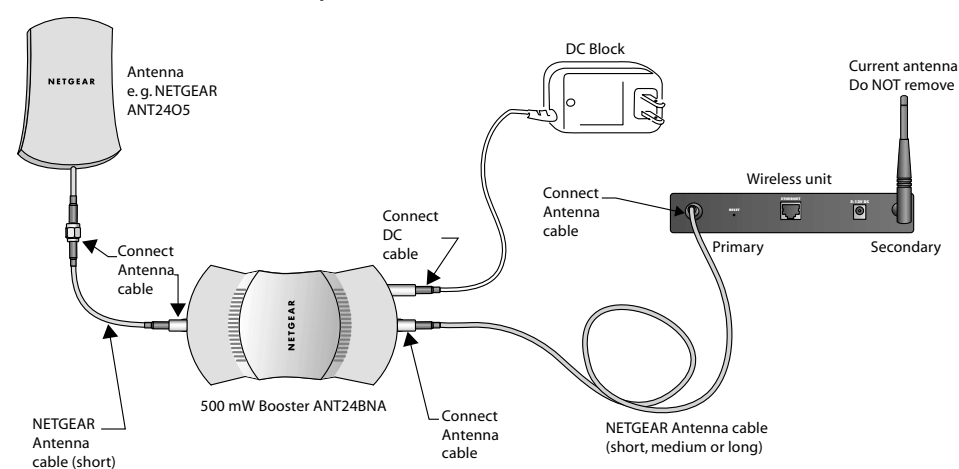
Installing the Booster

Turn off your ME103 Wireless Access Point and connect your wireless accessories according to the illustration. After attaching your new antenna, reconnect your wireless device to the network and turn it on.

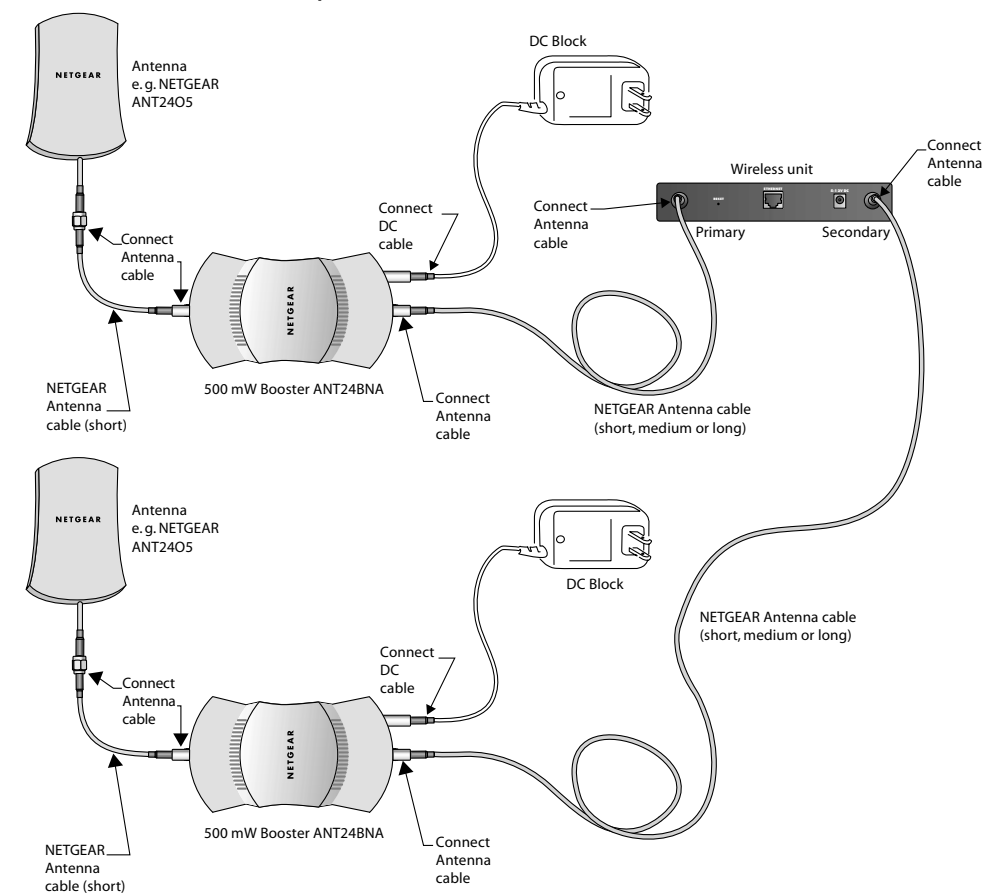
One Antenna Port, One Booster and One Antenna



Two Antenna Ports, One Booster and Two Antennas

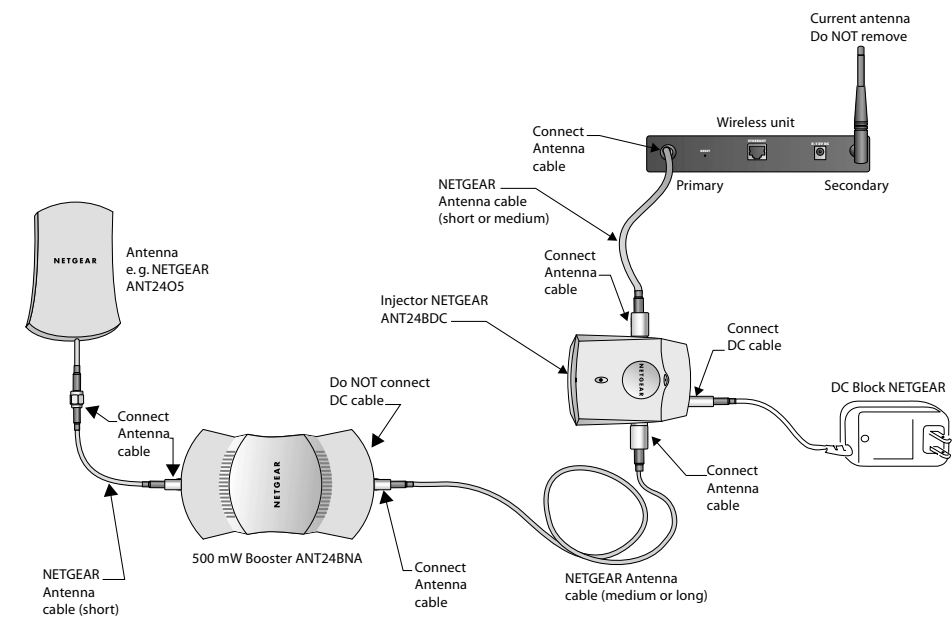


Two Antenna Ports, Two Boosters and Two Antennas



Installing the Booster with the Optional Power Injector

Note: As noted in the illustration below, be sure to disconnect the DC power adapter from the ANT24BNA Booster for 802.11b, and connect it to the NETGEAR ANT24BDC Power Injector.



Specifications

Description	NETGEAR 500mW Bi-directional Booster for 802.11b, with Two Female Reverse SMA Connectors
Frequency Range	2400 to 2500 MHz
Operating Mode	TDD Burst Mode
DC Surge Protection	600 Watts TVS @ 6VDC
Current Drain (TDD Mode)	700 mA type. @ 6VDC
Transmit Power	26.5 dBm minimum
Transmit Input Power	+ 5 dBm minimum
Transmit Ramp Up Time	3 μ s maximum
Receiver Gain	10 dB typical
Receiver Frequency Response	$\pm$ 1 dB over operating range
Receiver Noise Figure	5 dB maximum
Receiver Ramp Down Time	3 μ s maximum
Material	ABS
Color	White
Device Size (l x w x h)	130 x 75 x 37 mm (5.1 x 3.0 x 1.5 in)
Weight	5.0 g/1.1 lbs (including DC adapter)
RF Connector Type	SMA female reverse (2x), 1 for connection to antenna, 1 for connection to ME103 wireless access point
RF Connector Impedance	50 $\pm$ 5 Ohms
RF Connector Dielectric Withstanding Voltage	750 VRMS maximum
RF Connector Insertion Loss	0.2 dB

Description	NETGEAR 500mW Bi-directional Booster for 802.11b, with Two Female Reverse SMA Connectors
RF Connector Recommended Coupling Nut Torque	0.45 to 0.99 Nm (4.0 to 8.8 in.lb.)
RF Connector Coupling Nut Retention Force	22.7 kg (50 lb) min.
RF Connector Contact Captivation Axial	2.27 kg (5 lb) min.
RF Connector Body	Brass per JIS H3250 C3604 BD, Gold Plated per MIL-G-45204
RF Connector Contact	Beryllium Copper per QQ-C-530, Gold Plated per MIL-G-45204
Operating Temperature	0 to 70° C (32 to 158° F)
Storage Temperature	-30 to 80° C (-22 to 176° F)
Humidity	10% to 90%
Warranty	1 year

Description	NETGEAR PWR-10015-01 DC Adapter Specifications
AC Input Voltage	90 to 264 VAC
AC Input Frequency	50 to 60 Hz
AC Input Current	0.4 Arms for 115 VAC 0.2 Arms for 230 VAC
AC Inrush Current	30 A-Peak for 115 VAC 50 A-Peak for 230 VAC Full Load, 25° C, Cold Start
Output Voltage	+6 V
Total Regulation	±5%
Min/Max Load Current	0 A / 2.5 A
Ripple And Noise	60 mVPP
Total Output Power	15 W
Efficiency	65% minimum @115 VAC, 60 Hz, Full Load
Rise Time	100 ms maximum
Material	PVC + STEEL
Operating Temperature	0 to 40° C (32 to 104° F)
Storage Temperature	-40 to 70° C (-40 to 158° F)
Humidity	10% to 90%
Designed To Meet Standards	UL, CSA, TUV
Leakage Current	0.25 mA maximum
Over Current Protection	Short Circuit Protection

Specifications

Description	ANT24BDC Power Injector for the ANT24BNA Booster with Two Female Reverse SMA Connectors
Frequency Range	2400 to 2500 MHz
PTC Fuse	2.5 A / 30 V
Insertion Loss	1.5 dB maximum @ 2.4 to 2.5 GHz
Short Circuit Protection	PTC Fuse 2.5 A / 30 V
DC Supply Voltage	DC, 5 V to 12 V
RF Connector Type	SMA female reverse (2x), 1 for connection to antenna, 1 for connection to ME103
RF Connector Impedance	50 ± 5 Ohms
RF Connector Dielectric Withstanding Voltage	750 VRMS maximum
RF Connector Insertion Loss	0.2 dB
RF Connector Recommended coupling nut Torque	.45 to .99 Nm (4.0 to 8.8 in.lb.)
RF Connector Coupling nut retention force	22.68 kg (50 lbs.) minimum
RF Connector Contact captivation axial	2.27 kg (5 lbs.) minimum
RF Connector Body	Brass per JIS H3250 C3604 BD, Gold Plated per MIL-G-45204
RF Connector Contact	Beryllium Copper per QQ-C-530, Gold Plated per MIL-G-45204
Material	Aluminum Alloy
Color	White

Description	ANT24BDC Power Injector for the ANT24BNA Booster with Two Female Reverse SMA Connectors
Operation Temperature	0 to 70° C (32 to 158° F)
Storage Temperature	-10 to 80° C (14 to 176° F)
Humidity	10% to 90%
Device Size (l x w x h)	88.2 x 58.9 x 33.4 mm (3.48 x 2.32 x 1.32 in)
Weight	220 g (7.76 oz)
Warranty	1 year

Statement of Conditions

In the internal 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.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a 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 into an outlet on a circuit different from that to which the receiver is connected, (4) Consult the dealer or an experienced radio/TV technician for help.

Federal Communications Commission (FCC) Radiation Exposure Statement

To ensure compliance with the FCC's RF Exposure requirements for safety, all omni- directional antennas must be installed to provide a separation distance of at least 20cm from a person.
The panel antennas (Netgear part numbers ANT24D12 and ANT24D18) must be fixed mounted on a permanenet structure to ensure a separation distance of at least 50cm from all persons. The panel antennas can only be used for point-to-point applications and may not be used for point-to-multipoint applications.
The antennas shall not be co-located with other transmitting devices.

Note: To meet FCC regulations, the system must be installed as shown in the diagrams. Substitution of cables and access point provided and/or any modification to any of the components of this system will void the user's right to operate it.

Check http://www.NETGEAR.com/go/antennas_fcc for a list of FCC approved-antennas.

Use of this booster with any other devices is strictly prohibited by the FCC.

Technical Support

PLEASE REFER TO THE SUPPORT INFORMATION CARD THAT SHIPPED WITH YOUR PRODUCT.

By registering your product at *www.NETGEAR.com/register*, we can provide you with faster expert technical support and timely notices of product and software upgrades.

NETGEAR, INC.

Support Information

Phone: 1-888-NETGEAR (For US & Canada only) - 24x7 phone support

See Support Information card for other countries.

E-mail: support@NETGEAR.com (24x7 online support)

www.NETGEAR.com

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