1.1 BreezeNET DS.11 Functional Description

The BreezeNET BU-DS.11 and RB-DS.11 can be used as a high speed connection between two remote networks.

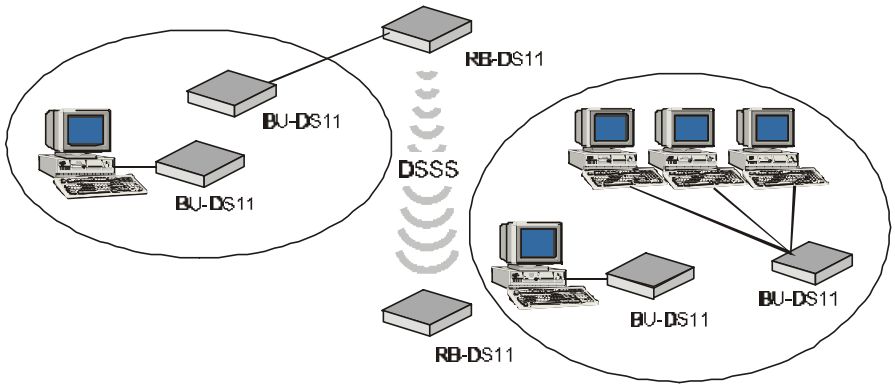


Figure -1. DS.11 Outdoor Application

BU-DS.11 Wireless Base Station

The BU-DS.11 is an IEEE 802.11 TGb-compliant base station bridge that is used to connect either a single remote site or multiple remote sites to a central server or Internet connection. It is the central unit for a multipoint configuration and always one side of a point-to-point configuration.

The BU-DS.11 comes in two options: the basic unit comes with an antenna integrated on the front cover of the Outdoor unit. In this model, the front cover also functions as a protective sun cover.

In BU-DS.11D models with no integral antenna, the unit is provided with one or two antenna connectors (on the Outdoor unit) for connection of one or two external antennas. When this unit is ordered, no antenna is supplied by BreezeCOM and a protective sun cover is mounted on the front of the Outdoor unit. When two antennas are connected to the Outdoor unit, the unit supports the antenna diversity feature.

RB-DS.11 Wireless Bridge Client

The RB-DS.11 connects a remote Ethernet network to a BU-DS.11 Multipoint Base Station bridge located at a central server or Internet site. It can be programmed to handle up to 1024 MAC addresses.

When a station on the Ethernet LAN sends a message that is not destined for a local station, the RB-DS.11 wirelessly forwards the message to the BU-DS.11. When the BU-DS.11 receives a message destined for a station on the RB-DS.11's LAN, the BU-DS.11 wirelessly forwards it to the RB-DS.11. In this manner, the RB-DS.11 and the BU-DS.11 work together like a standard network bridge.

The first time each station on the RB-DS.11’s LAN sends a message, the station’s address is registered in the RB-DS.11 and the BU-DS.11. The RB-DS.11 and BU-DS.11 can hold all the addresses necessary to support an entire LAN connected to a RB-DS.11.

The RB-DS.11 comes in two options: the basic unit comes with an antenna integrated on the front cover of the Outdoor unit.

The RB-DS.11D has no integral antenna, and provides one or two antenna connectors (on the Outdoor unit) for connection of one or two external antennas. When two antennas are connected to the Outdoor unit, the unit supports the antenna diversity feature.

Note: *The FCC 15.203 requirement prohibits the connection of external antennas with standard N-type connectors. In order to meet this requirement, the external antenna connectors provided on DS.11D models (with no integral antenna) are non-standard, featuring left-handed (counter-clockwise) rotation.*

Professional Installer (Antennas)

WARNING: It is the responsibility of the installer to insure that when using the outdoor antenna kits in the United States (or where FCC rules apply), only those antennas certified with the product are used. The use of any antenna other than those certified with the product is expressly forbidden in accordance to FCC rules CFR47 part 15.204.

The installer should configure the output power level of antennas, according to country regulations and per antenna type.

For complete information refer to User Manual.

Antennas specifications are given below.

Specification

FLAT PANEL DIRECTIONAL ANTENNA–MT30081(AN1076)

THE ANTENNA WILL COMPLY WITH ETSI DE/TM - 4060 , TS2

1. ELECTRICAL	
FREQUENCY	2.4 – 2.48 GHz
GAIN	15.5 dBi MIN
VSWR	1.5 : 1 MAX
3 dB BEAMWIDTH	20° TYP
POLARIZATION	LINEAR, Vertical
POWER	2 W
INPUT IMPEDANCE	50 Ohms
FRONT TO BACK	26 dB
2. MECHANICAL	
DIMENSIONS	304.8 x 304.8 x 50 mm
WEIGHT	1.5 Kg
CONNECTOR	MCX plug with 20 cm coaxial cable
RADOME	Plastic,white policarbonate
BASE PLATE	Aluminum
3. ENVIRONMENTAL	
TEMPERATURE	Operating -40 ° C to + 71 ° C including solar radiation
VIBRATION	ETS 300 019-1-4 (Feb.92),class 4.1 Sweep rate =0.1 octave/min; 10 cycles
SHOCK	ETS 300 019-2-2,Table 7
WIND LOAD	EN 302-085,Table A.1,Table A.2 (Heavy duty).
HUMIDITY	ETS 300 019-1-4 EN 302 085 (Annex A.1.1)
SALT FOG	MIL-STD-810E.Method 509.3 for 200 hours
ICE LOADING	EN 302-085, Table A.1, Table A.2 (Heavy duty).
SOLAR RADIATION	ETS 300 019-1-4
SERVICE LIFE	> 20 years
LIGHTNING PROTECTION	DC grounded

2.4 GHz ISM - MFB Omni-Directional Antenna Series

The MAXRAD MFB24004, MFB24006, and MFB24008 are omni-directional base station antennas for ISM applications. They are designed to cover the entire 2.4 ISM frequency band with a VSWR of less than 1.5:1. The antennas have 4, 6, and 8 dBi of gain and their built-in matching networks eliminate the need for a ground plane. The antennas can be mounted in a wide variety of locations, including walls, ceilings, and pipes.

General Specifications:
2.4 GHz ISM - MFB omni-directional antenna series
Radome Material:
5/8 inch diameter pultruded UV-stable fiberglass
Termination:
N Female
Polarization:
Vertical
Wind Survival:
125 mph
Mounting Base Diameter:
1 1/4 inches
Maximum Power:
25 watts
Mounting Hardware:
MMK1924 – L-bracket mount for wall or pipe mount (sold separately)
MMK8 - Stainless steel bracket for mast mounting (sold separately)
Nominal Impedance:
50 ohms

MFB24000 Series

MMK1924

MMK8

Mounting Hardware

Electrical Specifications
2.4 GHz ISM - MFB Omni-directional Antenna Series

Model #	Frequency Range	Factory Tuned Frequency	Gain	Bandwidth @ 1.5:1 VSWR	Vertical Beamwidth @ 1/2 Power	VSWR	Downtilt Options
MFB24004	2.400-2.4835 GHz	2.45 GHz	4 dBi	100 MHz	30°	< 1.5:1	N/A
MFB24006	2.400-2.4835 GHz	2.45 GHz	6 dBi	100 MHz	20°	< 1.5:1	N/A
MFB24008	2.400-2.4835 GHz	2.45 GHz	8 dBi	100 MHz	13°	< 1.5:1	3°, 5° or 7°

Mechanical Specifications
2.4 GHz ISM - MFB Omni-directional Antenna Series

Model #	Equivalent Flat Plate Area	Lateral Thrust @ Rated Wind	Bending Moment @ Rated Wind	Height	Weight	List Price
MFB24004	0.04 ft^2	3.2 lbs	1.1 ft-lbs	8 inches	0.34 lbs	$99.98
MFB24006	0.05 ft^2	4.5 lbs	2.2 ft-lbs	11.5 inches	0.38 lbs	$136.61
MFB24008	0.09 ft^2	8 lbs	6.7 ft-lbs	20 inches	0.5 lbs	$149.80

Mounting Hardware
2.4 GHz ISM - MFB Omni-directional Antenna Series

Model #	Description	List Price
MMK1924	Stainless steel L- bracket for wall mounting or for mounting an antenna with a base connector to a mast of up to 2" in diameter	$13.13
MMK8	Stainless steel bracket for mounting a 1-1/4" diameter antenna to a 2" maximum diameter mast	$17.35

2.4 GHz ISM - MFB Omni-Directional Antenna Series
Feature / Benefit List

Feature: U.V. stabilized, pultruded fiberglass radome
Benefit: *Antenna can be utilized in harsh outdoor environments, providing years of trouble-free service.*

Feature: 100 MHz of bandwidth
Benefit: *One antenna can be used to cover the entire 2400-2483.5 MHz ISM band.*

Feature: Electrical downtilt
Benefit: *The MFB24008 can be ordered with an electrical downtilt option. System planners will find the electrical downtilt feature helpful in challenging operating environments.*

2.4 GHz ISM - MFB Omni-Directional Antenna Series
Frequently Asked Questions

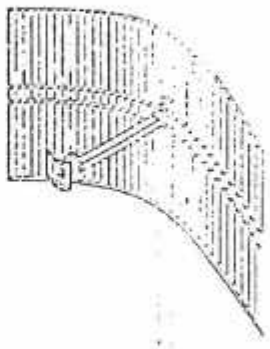
Question: What type of connector do I need to install an MFB24000 Series?
Answer: ***The antenna terminates in a type N Female, so your cable will need a type N Male. The radio will vary by manufacturer, but MAXRAD has a full line of connectors available including reverse thread and reverse polarity.***

Question: How do I mount the MFB24000 antennas?
Answer: ***The mounting base diameter is only 1-1/4 inches, so many MAXRAD mounts, including the MMK1924 and MMK8 will work.***

Question: Can the MFB24000 Series antenna be painted?
Answer: ***Yes, the antenna can be painted with a nonmetallic-based paint.***

Antenna Data Sheet

24 dBi DIRECTIONAL ANTENNA



Description

This high gain antenna is designed to be used with the BreezeNET and BreezeLINK product lines.
It has a narrow beamwidth of 7.5 degrees which increases the sensitivity to alignment inaccuracy, but decreases the fading due to multipath propagation.
It is intended for outdoor installations with large distances between sites.
The antennas are suitable for mounting on a mast with a tripodal base or fastened with guy wires.

General Specifications

Antennas

Reflector	Cast Magnesium
Gain	24dBi
Frequency Range	2.150 - 2.700 GHz
Beamwidth	7.5°
Impedance @ Output	50Ω
VSWR	1.4:1 Max
Polarization	Vertical and Horizontal
Cross Polarity Rejection	26dB Minimum
Front to Back ratio	31dB Minimum

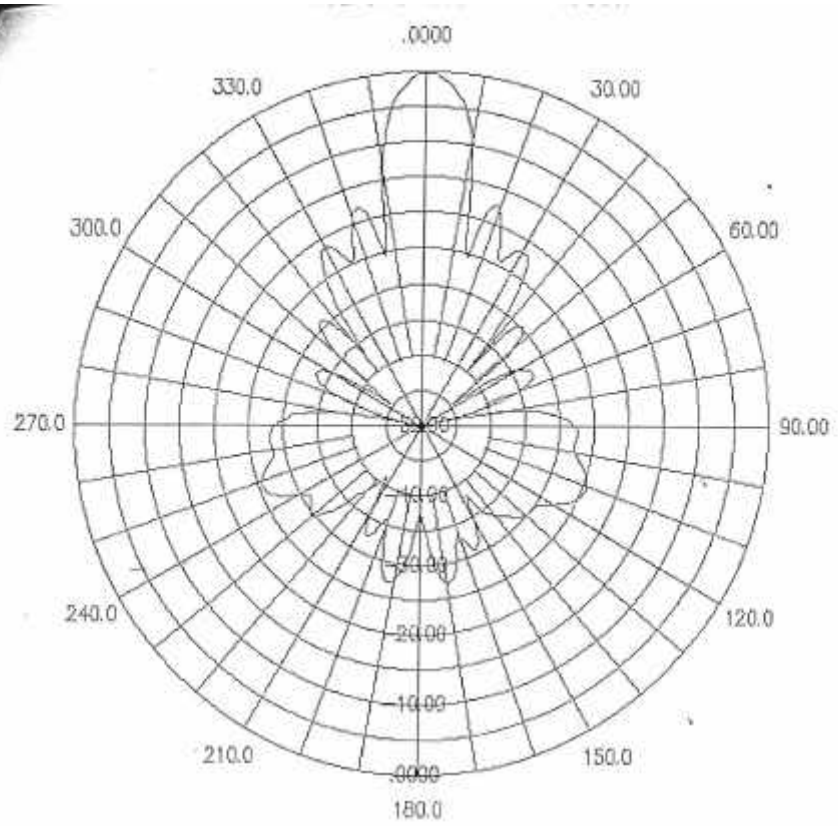
General

Size	610 x 915 x 381mm
	24 x 36 x 15 in
Weight	2.22 Kg (4.9 lb)

Cable

Type	RG - 8
Impedance	50Ω
Attenuation	0.6 dB/m @ 2.4 GHz
Length	2 feet
Connector	N- type

BreezeCOM
(formerly LANNAIR)
Breeze Wireless Communications Ltd.
Ariden Technological Park, Building 3,
Tel Aviv 61131,
ISRAEL
Tel: 972-3-6458421
Fax: 972-3-6458423



25T-2127 in Horizontal Plane

On Axis

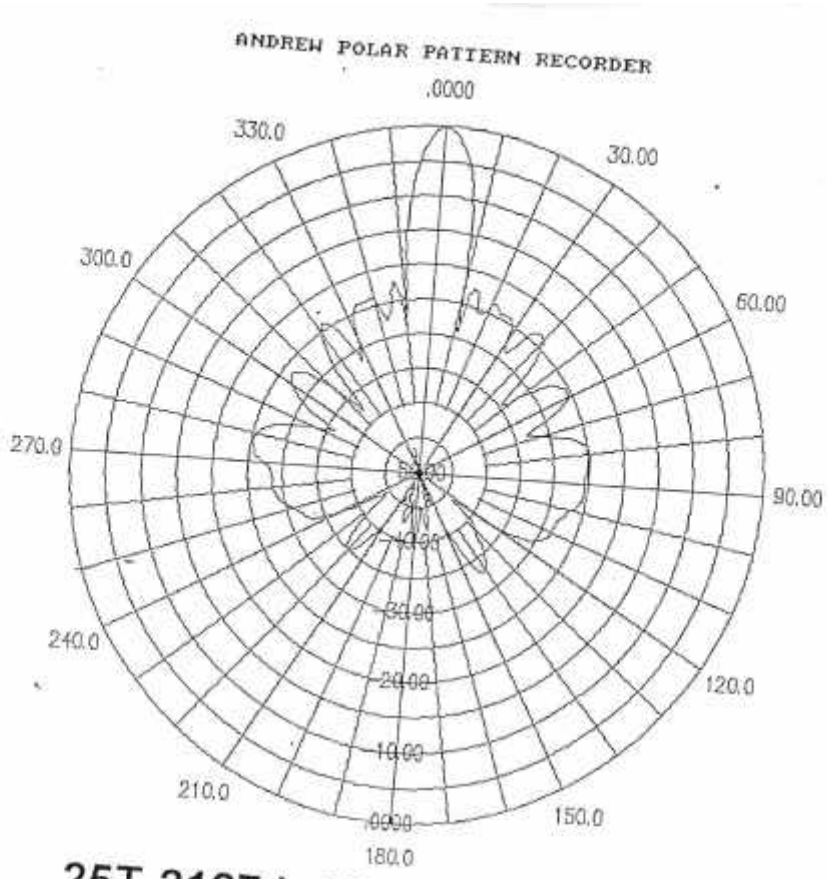
Frequency = 2400 MHz

Gain = 23.4dBi

CONIFER II™

WIRELESS TELECOMMUNICATION TECHNOLOGY

iller Corporation 1400 N. Roosevelt Avenue Burlington, IA. 52601 (319) 752-3927 FAX (319) 753-5508



25T-2127 in Vertical Plane

On Axis

Frequency = 2400MHz

Gain = 25.1dBi

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