

The SEL-3031 data radio, manufactured by SEL, is marketed by SEL to utility, industrial and commercial customers to provide the infrastructure for data communications. It is not sold to ordinary consumers. Thus the product is installed by professionals, who will mount the radio, provide power, route the feed line (often with lightning protection), erect towers, and install the antenna. Due to the wide variety of installation situations, installation by a professional using standard RF connection is necessary.

<u>Antenna Mfg.</u>	<u>Mfg. Part #</u>	<u>SEL Part #</u>	<u>Antenna Type</u>	<u>Antenna Gain</u>
Maxrad/PCTel	BMOY8905	235-0220	yagi	11.1 dBi
Maxrad/PCTel	BMOY8903	235-0221	yagi	8.5 dBi
Maxrad/PCTel	MFB9150	235-0231	dipole	2.1 dBi

The data sheets provided by the manufacturer of the antennas can be found at the links provided below. The relevant pages are also reproduced below. Note that the antenna manufacturer states the gain for the antennas in dB over a dipole.

Link for data on yagi antennas:

[http://wildcard.pctel.com/images\\_product\\_overview/pdf\\_docs/BMOY\\_PDS.pdf](http://wildcard.pctel.com/images_product_overview/pdf_docs/BMOY_PDS.pdf)

Link for data on omni antennas:

[http://wildcard.pctel.com/images\\_catalog\\_group/pdf\\_docs/2008NCO-FINAL.pdf](http://wildcard.pctel.com/images_catalog_group/pdf_docs/2008NCO-FINAL.pdf)

The minimum loss for the coaxial cable used between the RF output of the SEL-3031 and the antenna is 0.5 dB. This is for a 10 foot length of Times Microwave LMR400. This cable was used for all radiated emissions testing.

### Black Optimized Yagi Antennas

The BMOY yagis have been optimized using a genetic algorithm to achieve superior performance over the entire 800/900 MHz and UHF frequency bands. These antennas feature solid 3/8" elements attached to a seamless aluminum boom with 360° welds, and are finished with a black polyester powder coating. Each antenna has a type N termination located at the end of the boom, with a fully sealed driven element for complete protection against humidity, acid rain, or salt spray. A solid aluminum mounting bracket allows for either vertical or horizontal polarization. The BMOY's sturdy construction and advanced engineering design provides outstanding durability and superior performance in all weather conditions.

#### Features

- Broadband performance covering all 800/900 MHz frequencies with only three models, and no tuning required. Provides optimal performance, minimizes inventory requirements, and reduces installation time.
- Single wideband model (BMOYW8063) available in a 3-element configuration, covering 806-896 MHz frequencies with no tuning required.
- 360° welds at element and boom interface provide complete protection of the antenna's internal mechanism against moisture.
- Solid aluminum mounting clamps with stainless steel hardware. Ensures a robust installation and allows the antenna to be mounted for horizontal or vertical polarization.
- End-fed type N connector. Makes connector accessible for easier installations and protects the electrical connection from moisture and other extreme weather influences.
- Fully enclosed low loss feed system. No exposed gamma match to corrode or deteriorate.
- Black polyester powder-coated finish. Provides an added layer of protection, maximizing performance and durability under the toughest weather conditions.
- No tuning required. Allows faster, more reliable installations (UHF models).

**MAXRAD**

#### Technical Data

Maximum Power: 150 watts
Nominal Impedance: 50 ohms
Radiator Material: 3/8" solid 6061-T6 aluminum
Lightning Protection: DC grounded
Wind Survival: 200 mph with no ice. It will survive up to 110 mph with 0.5" radial ice build-up.
Termination: N female
Maximum Mounting Pipe Diameter: 1.9" OD (with MYK17 factory supplied mount) 2.68" OD (with MYK14 optional heavy duty mount)
Mounting Method: MYK17 mast mount bracket (included) MYK14 heavy duty mast mount is also available

For detailed specifications, visit <http://antenna.pctel.com>.



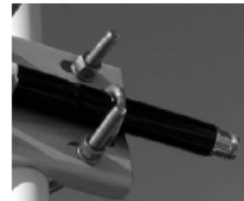
The BMOY UHF models are available in 3 element and 5 element versions. Each version includes models covering 406-440 MHz, 430-460 MHz, and 440-480 MHz. The line also includes a 5 element model covering 470-512 MHz.



BMOY8905



BMOY8903



End fed connector facilitates installation



360° welded elements and black powder coating provide maximum durability

## NON CELLULAR DIRECTIONAL BASE STATION ANTENNAS

### Yagi Base Station Antennas

#### Antenna Electrical Specifications

Model	Frequency Range	Gain	Bandwidth @ 1.5:1 VSWR	Horizontal Beamwidth @ 1/2 Power	Vertical Beamwidth @ 1/2 Power	Front-to-Back Ratio
BMOY4065	406-440 MHz	9.0 dBd	34 MHz	52°	45°	> 15 dB
BMOY4063	406-440 MHz	6.5 dBd	34 MHz	71°	62°	> 15 dB
BMOY4405	440-480 MHz	9.0 dBd	40 MHz	52°	45°	> 15 dB
BMOY4403	440-480 MHz	6.5 dBd	40 MHz	71°	62°	> 15 dB
BMOY4705	470-512 MHz	9.0 dBd	42 MHz	52°	45°	> 15 dB
BMOY8065	806-869 MHz	9.0 dBd	60 MHz	52°	45°	15 dB
BMOY8905	890-960 MHz	9.0 dBd	70 MHz	52°	45°	15 dB
BMOY8903	890-960 MHz	6.4 dBd	70 MHz	100°	54°	20 dB

#### Mechanical Specifications

Model	Weight (Mass)	Elements	Bending Moment @ 125 mph Wind	Lateral Thrust @ 125 mph Wind	Equivalent Flat Plate Area	Boom Length	Boom Diameter
BMOY4065	2 lbs	5	32.4 ft-lbs	24.2 lbs	.31 ft <sup>2</sup>	34"	.75"
BMOY4063	1.2 lbs	3	12.7 ft-lbs	14.8 lbs	.19 ft <sup>2</sup>	22"	.75"
BMOY4405	2 lbs	5	32.4 ft-lbs	24.2 lbs	.31 ft <sup>2</sup>	34"	.75"
BMOY4403	1.2 lbs	3	12.7 ft-lbs	14.8 lbs	.19 ft <sup>2</sup>	22"	.75"
BMOY4705	2 lbs	5	32.4 ft-lbs	24.2 lbs	.31 ft <sup>2</sup>	34"	.75"
BMOY8065	0.9 lbs	5	9.5 ft-lbs	12.6 lbs	.16 ft <sup>2</sup>	20.5"	.75"
BMOY8905	0.9 lbs	5	9.5 ft-lbs	12.6 lbs	.16 ft <sup>2</sup>	20.5"	.75"
BMOY8903	0.7 lbs	3	3.9 ft-lbs	7.9 lbs	.10 ft <sup>2</sup>	14"	.75"

## NON CELLULAR OMNIDIRECTIONAL BASE STATION ANTENNAS

### Fiberglass Omnidirectional Antennas



MFB9153RPC

## 900/800 MHz MAXRAD Fiberglass Base Station (MFB) Omnidirectional Antennas

The MFB 900/800 MHz series are base matched half wave antennas encapsulated in heavy duty fiberglass radomes with a thick walled aluminum mounting base for reliable long term use. All models are DC grounded and UPS shippable.

### Features

- White ultra-violet resistant pultruded fiberglass radome
- Thick walled aluminum mounting base
- Unity/3 dB/5 dB/7 dB models
- UPS shippable
- Exceptional value

**MAXRAD**



MMK3



MMK1



MMK4



MMK6



MBSWM



MMK9

### Technical Data

Maximum Power: 150 watts
Normal Impedance: 50 ohms
Radome Material: .65" pultruded white fiberglass
Radiator Material: Coated steel wire
Lightning Protection: DC grounded
Wind Survival: 100 mph
Termination: Unity and 3 dB models, N Female 5 dB and 7 dB models: N male with 16" jumper RPC: reverse polarity TNC
Mounting Base Diameter: 1-5/16"
Mounting Method: Mast or wall mounted. Mounting hardware is sold separately. MMK1: light duty mast mount for antennas under 30" MMK3: light duty mast mount for antennas over 30" MMK4: heavy duty mast mount MMK6: cast mounting bracket MMK9: Aluminum mast mount for 1-5/16" OD antennas MBSWM: wall mounting bracket for antennas over 30" (two are required)

For detailed specifications, visit <http://antenna.pctel.com>.

## NON CELLULAR OMNIDIRECTIONAL BASE STATION ANTENNAS

### Fiberglass Omnidirectional Antennas

#### Mechanical Specifications

Model	Height	Weight (Mass)	Bending Moment at Rated Wind	Lateral Thrust at Rated Wind	Equivalent Flat Plate Area
MFB8130	14"	.75 lbs	1.4 ft-lbs	2.3 lbs	.06 sq ft
MFB8133	26"	1.25 lbs	4.7 ft-lbs	4.3 lbs	.12 sq ft
MFB8135*	48"	1.75 lbs	14.2 ft-lbs	8.0 lbs	.22 sq ft
MFB8580	14"	.75 lbs	1.4 ft-lbs	2.3 lbs	.06 sq ft
MFB8583	26"	1.25 lbs	4.7 ft-lbs	4.3 lbs	.12 sq ft
MFB8585*	48"	1.75 lbs	14.2 ft-lbs	8.0 lbs	.22 sq ft
MFB8353	26"	1.25 lbs	4.7 ft-lbs	4.3 lbs	.12 sq ft
MFB8963	26"	1.25 lbs	4.7 ft-lbs	4.3 lbs	.12 sq ft
MFB8965*	48"	1.75 lbs	14.2 ft-lbs	8.0 lbs	.22 sq ft
MFB9387*	96"	4.00 lbs	62.5 ft-lbs	15.8 lbs	.44 sq ft
MFB8967*	96"	4.00 lbs	62.5 ft-lbs	15.8 lbs	.44 sq ft
MFB9150	14"	.75 lbs	1.4 ft-lbs	2.3 lbs	.06 sq ft
MFB9153	23.25"	1.25 lbs	4.7 ft-lbs	4.3 lbs	.12 sq ft
MFB9155*	48"	1.75 lbs	14.2 ft-lbs	8.0 lbs	.22 sq ft
MFB9157*	96"	4.00 lbs	62.5 ft-lbs	15.8 lbs	.44 sq ft

\* For N Female connector add \$10.00. Mount sold separately.



MFB9150