Cellular, PCS, Data, ISM and WLL are technologies migrating to completely wireless systems. Base station antennas provide the critical link between the user and the system provider. They also provide connectivity within the system without being directly accessed by the user. Base station antennas, as their name implies, are usually fixed in a specific location in the network and provide connectivity over a geographic area or from point-to-point. Base station antennas can be broken into two general categories; omni-directional and directional.

Larsen manufactures a variety of small base station antennas to meet many of today’s demanding requirements. Our versatile product line offers selection and performance to meet your system needs. In addition to our standard product offering, Larsen’s engineering staff can work with you to design antennas to your exact specifications.

**OMNI-DIRECTIONAL ANTENNAS**

Omni-directional antennas have radiation patterns which cover the horizon uniformly. Gain greater than unity is achieved by forming a collinear vertical array, which reduces the elevation beamwidth but leaves the azimuth (horizon) pattern unaffected.

**Moderate-Duty Omnis**

Larsen’s moderate-duty omni antenna radiating elements and ground plane radials are constructed using 17-7 heat-treated stainless steel. All base station antennas are supplied with mounting hardware.

**DIRECTIONAL ANTENNAS**

Directional antennas are used in communication systems where gain higher than can be provided by a reasonable omni (> 7 dBi) is required. Directional antennas are useful for remote locations where high gain is required, and the direction to a desired transmitter / receiver is known. They are used in cell and microcell applications to divide a geographical region into sectors. This reduces interference in the network, allowing a greater number of users to be served.

Antenna gain and directivity are increased by increasing the effective aperture of the antenna. In a Yagi, this means lengthening the boom and adding more elements (directors) to the antenna.
BSA Series Omnis
BSA series omni antennas are engineered to provide lasting performance in the most demanding field conditions.

Design features include:
- Heavy, nickel-plated brass square nut radial collar (square nut allows easy removal for extra portability and convenience)
- 150 MHz and 220 MHz models are DC grounded
- Wind load rating 100 mph

Yagis
A Yagi is a parasitic linear array of parallel dipoles. Typical construction uses a single driven dipole with a reflector and director elements excited by near-field coupling to the driven element. Yagis are popular due to their rugged construction and relatively high gain.

YA series Yagis are built to precise specifications to perform in extreme weather conditions. Yagis are welded for high strength and low noise performance.

Features include:
- Fully welded design
- Solid aluminum elements
- Aluminum tube boom
- Wind load rating 100 mph
- Optional heavy duty bracket for up to 2.5” pipe

FB Series Omnis
FB series omni antennas are designed for optimum performance in extreme weather conditions.

Design features include:
- Compact, easily transportable design
- All-weather construction
- Wind load rating 100 mph

NOTE: Antennas are not to scale
BASE STATION ANTENNAS

**MODEL**  
BSA45C  
BSA118B

**FREQUENCY (MHz)**  
45 - 50  
118 - 121

**SPECIFICATIONS**

- **GAIN**: 2.14 dBi  
- **TYPE**: Base loaded 1/4 wave
- **VSWR (see bandwidth)**: 1.5:1
- **BANDWIDTH @ 2.0**: 3%
- **COLOR**: Black/Stainless
- **POWER RATING**: 200 Watts
- **MAX HEIGHT**: 51 3/4"
- **FEED CONNECTION**: UHF Female
- **WIND LOAD**: 100 mph

Field tunable low band omni base station kit, 45 - 50 MHz.

Factory tuned mid band omni base station kit, 118 - 121 MHz.

To convert to Gain (dBi):  
Gain (dBi) - 2.14

NOTE: Antennas are not to scale
## BASE STATION ANTENNAS

### Model Frequency (MHz)

<table>
<thead>
<tr>
<th>Model</th>
<th>Frequency (MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSA132B</td>
<td>131 - 135</td>
</tr>
<tr>
<td>BSA150B</td>
<td>144 - 174</td>
</tr>
</tbody>
</table>

### Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain</td>
<td>5.2 dBi</td>
</tr>
<tr>
<td>Type</td>
<td>5/8 wave</td>
</tr>
<tr>
<td>VSWR (see bandwidth)</td>
<td>1.5:1</td>
</tr>
<tr>
<td>Bandwidth @ 1.5</td>
<td>2%</td>
</tr>
<tr>
<td>Bandwidth @ 2.0</td>
<td>4%</td>
</tr>
<tr>
<td>Color</td>
<td>Black</td>
</tr>
<tr>
<td>Power Rating</td>
<td>200 Watts</td>
</tr>
<tr>
<td>Max Height</td>
<td>54 1/2&quot;</td>
</tr>
<tr>
<td>Feed Connection</td>
<td>UHF Female</td>
</tr>
<tr>
<td>Wind Load</td>
<td>100 mph</td>
</tr>
</tbody>
</table>

Factory tuned VHF omni base station kit, 131 - 135 MHz.

Field tunable VHF omni base station kit, 144 - 174 MHz. Black coil and whip.

**NOTE:** Antennas are not to scale.

To convert to Gain (dBd):
Gain (dBi) - 2.14
BASE STATION ANTENNAS

Field tunable VHF omni base station kit, 144 - 174 MHz. Black coil, stainless whip.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FREQUENCY (MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSA150C</td>
<td>144 - 174</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**

- **GAIN**: 5.2 dBi
- **TYPE**: 5/8 wave
- **VSWR (see bandwidth)**: 1.5:1
- **BANDWIDTH @ 1.5**: 2%
- **BANDWIDTH @ 2.0**: 4%
- **COLOR**: Black/Stainless
- **POWER RATING**: 200 Watts
- **MAX HEIGHT**: 51 3/4"
- **FEED CONNECTION**: UHF Female
- **WIND LOAD**: 100 mph

Factory tuned omni base station kit, 220 - 225 MHz.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FREQUENCY (MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSA220C</td>
<td>200 - 225</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**

- **GAIN**: 5.2 dBi
- **TYPE**: 5/8 wave
- **VSWR (see bandwidth)**: 1.5:1
- **BANDWIDTH @ 1.5**: 2%
- **BANDWIDTH @ 2.0**: 4%
- **COLOR**: Black/Chrome
- **POWER RATING**: 200 Watts
- **MAX HEIGHT**: 33 3/4"
- **FEED CONNECTION**: UHF Female
- **WIND LOAD**: 100 mph

To convert to Gain (dBi):
Gain (dBi) - 2.14

NOTE: Antennas are not to scale
BASE STATION ANTENNAS

MODEL FREQUENCY (MHz)
BSA406C 406 - 420
BSA440C 440 - 460
BSA450C 450 - 470
BSA470C 470 - 490
BSA490C 490 - 512

SPECIFICATIONS
GAIN 5.6 dBi
TYPE 5/8 over 1/2 wave
VSWR 2:1
COLOR Black/Stainless
POWER RATING 200 Watts
MAX HEIGHT 32"
FEED CONNECTION UHF Female
WIND LOAD 100 mph

Field tunable UHF omni base station kit, 406 - 512 MHz.

MODEL BSAKIT

SPECIFICATIONS
TYPE Base station ground plane kit
POWER RATING 200 Watts
FEED CONNECTION UHF Female
WIND LOAD 100 mph

Omni base station ground plane kit converts PO or NMO mobile antennas for base applications, 144 - 512 MHz.

NOTE: Antennas are not to scale

1 800 ANTENNA

To convert to Gain (dBi): Gain (dBi) - 2.14
BASE STATION ANTENNAS

FIELD TUNABLE 5.6 dB gain VHF base station. Provides 5 MHz bandwidth at tuned frequency, 136 - 230 MHz. Includes mounting hardware.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FREQUENCY (MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB1136</td>
<td>136 - 230</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**

- **GAIN**: 5.6 dBi
- **TYPE**: 5/8 over 1/2 wave
- **VSWR**: 1.5:1
- **POWER RATING**: 200 Watts
- **MAX LENGTH**: 96”
- **FEED CONNECTION**: UHF Female
- **WIND LOAD**: 100 mph

Field tunable UHF omni base antenna with attached ground plane, 406 - 470 MHz. Includes mounting bracket and hardware.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FREQUENCY (MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB2406</td>
<td>406 - 420</td>
</tr>
<tr>
<td>FB2420</td>
<td>420 - 440</td>
</tr>
<tr>
<td>FB2450</td>
<td>450 - 470</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**

- **GAIN**: 5.4 dBi
- **TYPE**: 5/8 over 1/4 wave
- **VSWR**: 1.5:1
- **COLOR**: Black
- **WHIP**: .100, open coil
- **POWER RATING**: 200 Watts
- **MAX HEIGHT**: 32 1/4”
- **FEED CONNECTION**: N Female
- **WIND LOAD**: 100 mph

To convert to Gain (dBi): Gain (dBi) - 2.14

**NOTE**: Antennas are not to scale
BASE STATION ANTENNAS

MODEL | FREQUENCY (MHz)  
--- | ---  
FB2406WA | 406 - 420  
FB2420WA | 420 - 440  
FB2450WA | 450 - 470  

SPECIFICATIONS

| GAIN | 5.4 dBi  
| TYPE | 5/8 over 1/4 wave  
| VSWR | 1.5:1  
| COLOR | Black  
| WHIP | .100, open coil  
| POWER RATING | 200 Watts  
| MAX HEIGHT | 32 1/4”  
| FEED CONNECTION | N Female  
| WIND LOAD | 100 mph  

Field tunable UHF omni base antenna only with attached ground plane, 406 - 470 MHz. No mounting hardware.

MODEL | FREQUENCY (MHz)  
--- | ---  
FB3800 | 806 - 866  
FB3825 | 824 - 896  

SPECIFICATIONS

| GAIN | 5.4 dBi  
| TYPE | 5/8 over 1/4 wave  
| VSWR | 25:1  
| COLOR | Black  
| WHIP | .100, open coil  
| POWER RATING | 150 Watts  
| MAX HEIGHT | 16”  
| FEED CONNECTION | N Female  
| WIND LOAD | 100 mph  

Field tunable omni base antenna with attached ground plane, 740 - 896 MHz. Includes mounting bracket and hardware.

NOTE: Antennas are not to scale
BASE STATION ANTENNAS

To convert to Gain (dBd):
Gain (dBi) - 2.14

NOTE: Antennas are not to scale
BASE STATION ANTENNAS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FREQUENCY (MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB35T800WA</td>
<td>806 - 866</td>
</tr>
<tr>
<td>FB35T825WA</td>
<td>824 - 896</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**

- **GAIN**: 7.2 dBi
- **TYPE**: 5/8 over 5/8 over 1/4 wave
- **VSWR**: 2:1
- **COLOR**: Black
- **WHIP**: .100, twin open coil
- **POWER RATING**: 150 Watts
- **MAX HEIGHT**: 32”
- **FEED CONNECTION**: N Female
- **WIND LOAD**: 100 mph

High gain omni base antenna with attached ground plane SMR, cellular or data applications. No mounting hardware.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FREQUENCY (MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB3900</td>
<td>890 - 960</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**

- **GAIN**: 5.4 dBi
- **TYPE**: 5/8 over 1/4 wave
- **VSWR**: 2:1
- **COLOR**: Black
- **WHIP**: .100, open coil
- **POWER RATING**: 150 Watts
- **MAX HEIGHT**: 16”
- **FEED CONNECTION**: N Female
- **WIND LOAD**: 100 mph

Field tunable omni base antenna with attached ground plane, 890 - 960 MHz. Includes mounting bracket and hardware.

NOTE: Antennas are not to scale

To convert to Gain (dBd):
Gain (dBi) - 2.14
## BASE STATION ANTENNAS

### Omni Base Antenna

<table>
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<tr>
<th>MODEL</th>
<th>FREQUENCY (MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB3900WA</td>
<td>890 - 960</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**
- **GAIN**: 5.4 dBi
- **TYPE**: 5/8 over 1/4 wave
- **VSWR**: 2:1
- **COLOR**: Black
- **WHIP**: .100, open coil
- **POWER RATING**: 150 Watts
- **MAX HEIGHT**: 16"
- **FEED CONNECTION**: N Female
- **WIND LOAD**: 100 mph

Omni base antenna with attached ground plane, 890 - 960 MHz. No mounting hardware.

### High Gain Omni Base Antenna

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FREQUENCY (MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB35T900</td>
<td>902 - 928</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**
- **GAIN**: 7.2 dBi
- **TYPE**: 5/8 over 5/8 over 1/4 wave
- **VSWR**: 2:1
- **COLOR**: Black
- **WHIP**: .100, twin open coil
- **POWER RATING**: 150 Watts
- **MAX HEIGHT**: 23"
- **FEED CONNECTION**: N Female
- **WIND LOAD**: 100 mph

High gain omni base antenna with attached ground plane for SMR, cellular or data applications. Includes mounting bracket and hardware.
BASE STATION ANTENNAS

MODEL | FREQUENCY (MHz)
--- | ---
FB35T900WA | 902 - 928

SPECIFICATIONS
- GAIN: 7.2 dBi
- TYPE: 5/8 over 5/8 over 1/4 wave
- VSWR: 2:1
- COLOR: Black
- WHIP: .100, twin open coil
- POWER RATING: 150 Watts
- MAX HEIGHT: 23"
- FEED CONNECTION: N Female
- WIND LOAD: 100 mph

High gain omni base antenna with attached ground plane SMR, cellular or data applications. No mounting hardware.

MODEL | FREQUENCY (MHz)
--- | ---
FB45T2400 | 2400 - 2485

SPECIFICATIONS
- GAIN: 7.2 dBi
- TYPE: 5/8 over 5/8 over 1/4 wave
- VSWR: 1.5:1
- COLOR: Black
- WHIP: .070, twin open coil
- POWER RATING: 100 Watts
- MAX HEIGHT: 15.6"
- FEED CONNECTION: N Female
- WIND LOAD: 100 mph

High gain omni base antenna with attached ground plane, 2400 - 2485 MHz. Includes mounting bracket and hardware.

NOTE: Antennas are not to scale
1 800 ANTENNA

To convert to Gain (dBi): Gain (dBi) - 2.14
BASE STATION ANTENNAS

High gain omni base antenna with attached ground plane, 2400 - 2485 MHz. No mounting hardware.

GPS base station timing antenna.

To convert to Gain (dBi):
Gain (dBi) - 2.14

MODEL | FREQUENCY (MHz)
--- | ---
FB45T2400WA | 2400 - 2485

SPECIFICATIONS
- GAIN: 7.2 dBi
- TYPE: 5/8 over 5/8 over 1/4 wave
- VSWR: 1.5:1
- COLOR: Black
- WHIP: .070, twin open coil
- POWER RATING: 100 Watts
- MAX HEIGHT: 9"
- FEED CONNECTION: N Female
- WIND LOAD: 100 mph

MODEL | FREQUENCY (MHz)
--- | ---
GPS0015 | 1575.42 ± 1.023

SPECIFICATIONS
- LNA GAIN: 25 ± 2 dB
- VOLTAGE: 4.5 ~ 12 V DC
- CURRENT: 30 mA
- VSWR: <2:1
- IMPEDANCE: 50 Ohms
- POLARIZATION: Right Hand Circular
- CONNECTOR: N Male
- HEIGHT: 4"
- DIAMETER: 4.25"
- OPERATING TEMP: -22° to +176° F
- MOUNTING: Bracket

NOTE: Antennas are not to scale
BASE STATION ANTENNAS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FREQUENCY (MHz)</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>YA3406WN</td>
<td>406 - 430</td>
<td>42.25&quot;</td>
</tr>
<tr>
<td>YA3450WN</td>
<td>450 - 470</td>
<td>36.25&quot;</td>
</tr>
<tr>
<td>*YA3470WN</td>
<td>470 - 490</td>
<td>35.25&quot;</td>
</tr>
<tr>
<td>*YA3490WN</td>
<td>490 - 512</td>
<td>34.25&quot;</td>
</tr>
</tbody>
</table>

SPECIFICATIONS

- **GAIN**: 11 dBi
- **TYPE**: Five element welded
- **VSWR**: 2:1
- **POWER RATING**: 300 Watts
- **FEED CONNECTION**: N Female
- **BEAMWIDTH**: 53°
- **WIND LOAD**: 100 mph

*Minimum order quantities apply to these products. Please contact the factory for more information.*

Fully welded five element UHF Yagi. Wide band, high gain, 406 - 512 MHz. Includes mounting hardware.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FREQUENCY (MHz)</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>YA51400W</td>
<td>1395 - 1450</td>
<td>23.5&quot;</td>
</tr>
</tbody>
</table>

SPECIFICATIONS

- **GAIN**: 10 dBi
- **TYPE**: Seven element welded
- **VSWR**: 2:1
- **POWER RATING**: 300 Watts
- **FEED CONNECTION**: N Female
- **BEAMWIDTH**: H Plane: 54° typical
- **WIND LOAD**: 100 mph

Fully welded seven element UHF Yagi. High gain, 1395 - 1450 MHz. Includes mounting hardware.

Note: Antennas are not to scale.
BASE STATION ANTENNAS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FREQUENCY (MHz)</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>YA5740W</td>
<td>740 - 806</td>
<td>32.75&quot;</td>
</tr>
<tr>
<td>YA5800W</td>
<td>806 - 866</td>
<td>31.25&quot;</td>
</tr>
<tr>
<td>YA5825W</td>
<td>824 - 896</td>
<td>31.25&quot;</td>
</tr>
<tr>
<td>YA5900W</td>
<td>890 - 960</td>
<td>30&quot;</td>
</tr>
</tbody>
</table>

SPECIFICATIONS
- GAIN: 11 dBi
- TYPE: Seven element welded
- VSWR: 2:1
- POWER RATING: 300 Watts
- FEED CONNECTION: N Female
- BEAMWIDTH: H Plane: 54° typical
  E Plane: 45° typical
- WIND LOAD: 100 mph

Fully welded seven-element Yagi for SMR, cellular or data frequencies.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FREQUENCY (MHz)</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>YA6740W</td>
<td>740 - 806</td>
<td>19.25&quot;</td>
</tr>
<tr>
<td>YA6800W</td>
<td>806 - 866</td>
<td>17.5&quot;</td>
</tr>
<tr>
<td>YA6825W</td>
<td>824 - 896</td>
<td>17.5&quot;</td>
</tr>
<tr>
<td>YA6900W</td>
<td>890 - 960</td>
<td>17.5&quot;</td>
</tr>
</tbody>
</table>

SPECIFICATIONS
- GAIN: 8 dBi
- TYPE: Four element welded
- VSWR: 2:1
- POWER RATING: 300 Watts
- FEED CONNECTION: N Female
- BEAMWIDTH: H Plane: 86° typical
  E Plane: 58° typical
- WIND LOAD: 100 mph

Fully welded four-element Yagi for SMR, cellular or data frequencies.

To convert to Gain (dBd):
Gain (dBi) - 2.14

www.larsen-antennas.com

NOTE: Antennas are not to scale