

# SD-FM DIPOLE 87-194 MHz

VHF Base Station Antenna 87...194 MHz

## DESCRIPTION

Dipole base station antenna working on 87-194 MHz by cutting. Optimized for vertical polarization it can be also placed in horizontal polarization. The elements are fixed to the boom by a strong die-cast metal support to get the maximum strength. All connections are waterproof and it is supplied with UHF female connector. To improve the antenna gain please install it in stacked or bayed array.

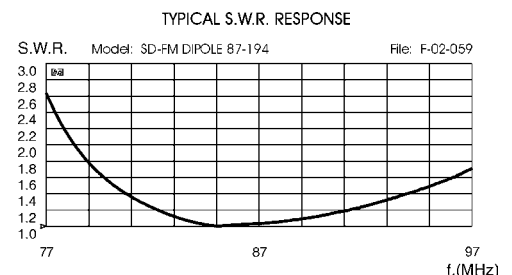
## TECHNICAL DATA

### Electrical Data

|                       |   |
|-----------------------|---|
| Type                  | Dipole  |
| Frequency range       | 87 - 194 MHz tunable by cutting                   |
| Impedance             | 50 $\Omega$                                       |
| Radiation (H-plane)   | beamwidth @ -3 dB=240° (vertical polariz. only)   |
| Radiation (E-plane)   | beamwidth @ -3 dB = 80° (vertical polariz. only)  |
| Front to back ratio   | $\geq 4$ dB (vertical polarization only)          |
| Polarization          | Linear Vertical or Horizontal                     |
| Gain                  | 1.85 dBd - 4 dBi (vertical polarization only)     |
| Bandwidth @ SWR 1.5   | $\geq 14.5$ @ 87 MHz (vertical polarization only) |
| SWR @ freq. res.      | $\leq 1.2$ @ 87 MHz (vertical polarization only)  |
| Max Power (CW) @ 30°C | 300 Watts   |
| Connector             | UHF-female  |

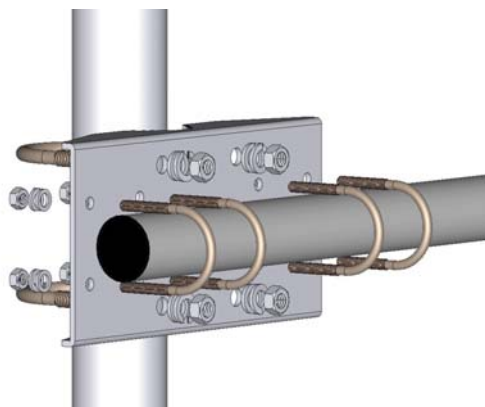
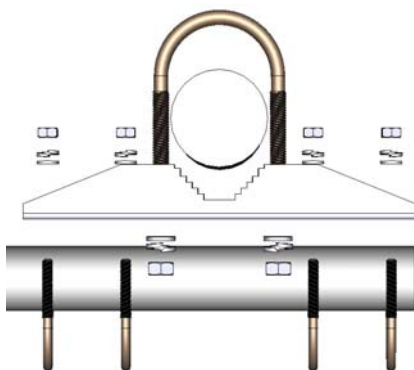
### Mechanical Data

|                          |   |
|--------------------------|---|
| Materials                | Aluminum, Zamak, Zinc plated, Chromed Brass |
| Wind load / resistance   | 99 N @ 150 Km/h / 160Km/h                   |
| Wind surface             | 0.08 m <sup>2</sup>                         |
| Boom/elements diameter   | 33mm/16mm                                   |
| Dimensions (approx.)     | 1030 x 1600 mm                              |
| Weigth (approx.)         | 1850 gr                                     |
| Turning radius (approx.) | 990 mm                                      |
| Operating temperature    | -40° C to +80° C                            |
| Mounting Mast            | $\varnothing$ 35-52 mm                      |



## MOUNTING INSTRUCTIONS

### Mounting Bracket



### SD bracket parts list

| Q.ty                        | Description         |
|-----------------------------|---------------------|
| 1                           | SD/SY Steel bracket |
| 2                           | M8x200 U-bolt       |
| 4                           | M8 Hexagonal nut    |
| 4                           | M8 Grower washer    |
| 4                           | M8 Flat Washer      |
| 4                           | M6x125 U-bolt       |
| 8                           | M6 Hexagonal nut    |
| 8                           | M6 Grower washer    |
| 8                           | M6 Flat washer      |
| Materials Zinc Plated Steel |                     |
| Weight                      | 865g                |
| <b>Re-order code: SA088</b> |                     |

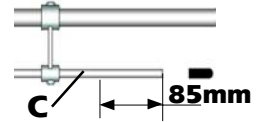
# MOUNTING INSTRUCTIONS



**ATTENTION!**  
Place the Gamma Match on upper side for vertical polarization

## Direction for tuning

- 1) Choose your working frequency.
- 2) Cut both tubes **A** at **L1** (PVC cap must not be mounted).
- 3) Assemble both tubes **A** and place element **B** at **L2**.
- 4) Place element **C** of the gamma match at **L3**.
  - working frequency **87...123 MHz**: proceed at point 5).
  - working frequency **123...194 MHz**: cut element **C** **85mm** from the side of PVC cap



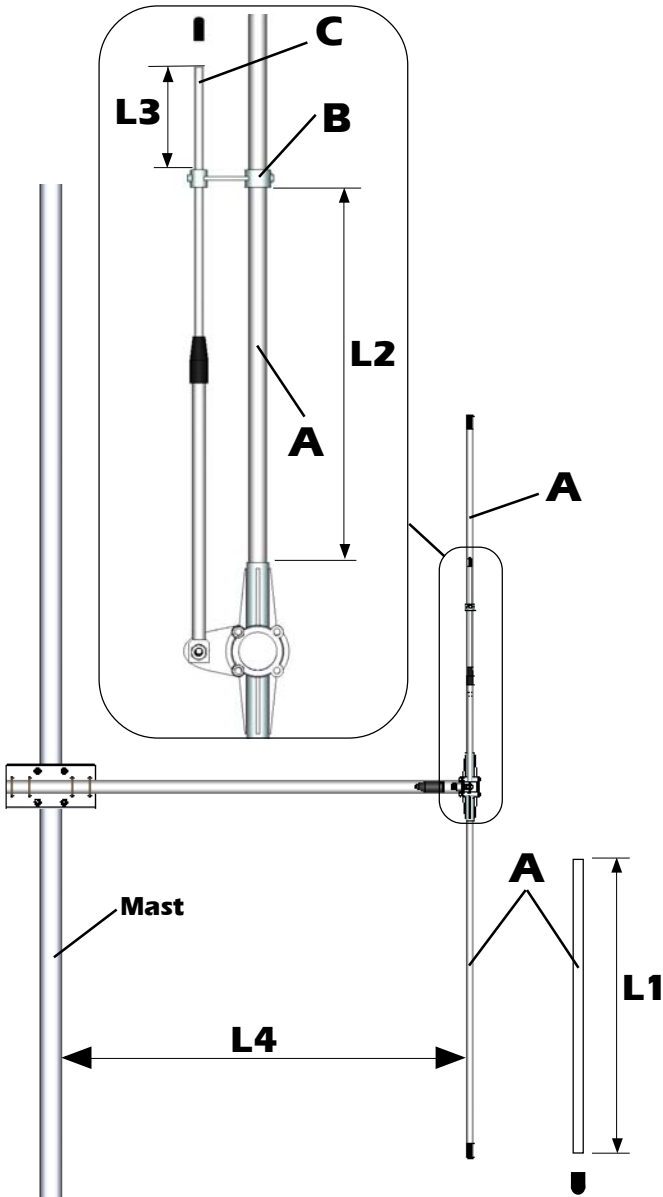
5) You can proceed by mounting your antenna on the mast in vertical or horizontal position.

- **Vertical** polarization: place your antenna at distance **L4** from the mast to get the best performance
- **Horizontal** polarization: distance **L4** is not required

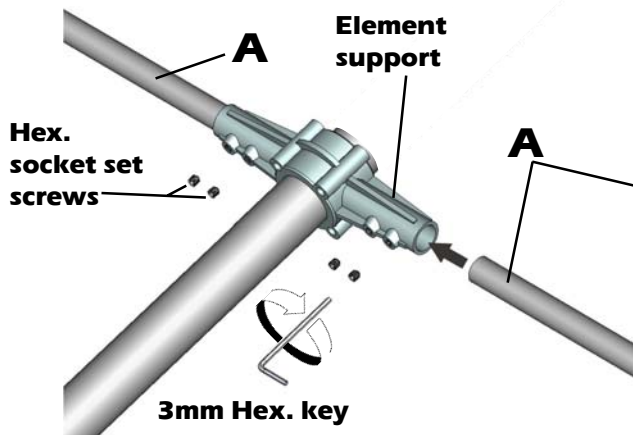
**Note:** It is recommended to use the above table just as a guide. For fine-tuning please use an SWR-Meter.

| Freq. (MHz) | L1 (mm) | L2 (mm) | L3 (mm) | L4 (mm) |
|-------------|---------|---------|---------|---------|
| 87          | 770     | 249     | 19      | 860     |
| 93          | 726     | 242     | 30      | 810     |
| 98          | 690     | 233     | 42      | 771     |
| 103         | 664     | 226     | 51      | 742     |
| 108         | 634     | 220     | 58      | 716     |
| 113         | 615     | 214     | 65      | 689     |
| 118         | 582     | 210     | 73      | 650     |
| 123         | 550     | 205     | 81      | 610     |
| 123         | 550     | 179     | 102     | 610     |
| 130         | 510     | 171     | 113     | 576     |
| 138         | 470     | 163     | 125     | 541     |
| 146         | 438     | 156     | 135     | 508     |
| 154         | 413     | 146     | 146     | 483     |
| 162         | 390     | 136     | 157     | 460     |
| 170         | 370     | 127     | 168     | 440     |
| 178         | 350     | 119     | 177     | 420     |
| 186         | 333     | 111     | 186     | 403     |
| 194         | 315     | 102     | 196     | 385     |

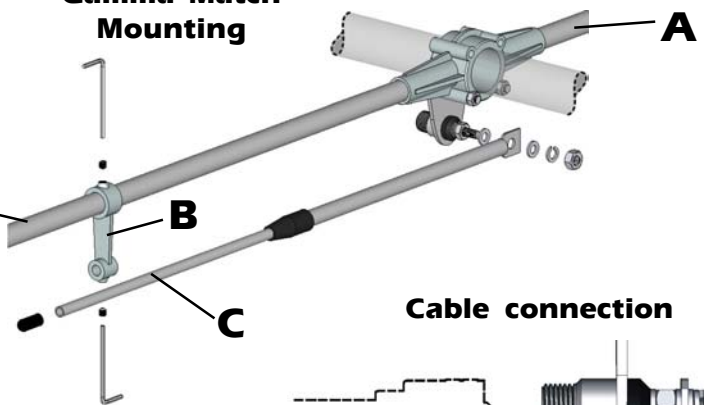
See "Direction for tuning" point 4



### Element Mounting



### Gamma Match Mounting



### Cable connection

