

## PRODUCT DATA SHEET

# THEMATCHBOX Matching Transformer

Model MB.22

THEMATCHBOX is a broadband multi-tap transmission-line transformer that raises the magnitude of the characteristically low impedances of electrically short-end fed antennas to an impedance suitable for direct connection to 50-ohm coaxial cable without significant loss or standing wave ratio. Superior to conventional transformers which perform well only above 1 MHz, THEMATCHBOX works well at low frequencies (down to 100 kHz) due to its manganese zinc alloy composition.



The feed-point impedance of electrically short-end fed antennas is heavily influenced by local ground conductivity as well as the quality of the antenna's ground system, in addition to its physical length. Multiple impedance step-up ratios are required to cover a wide range of soil conductivity and ground-system variations encountered in the field. THEMATCHBOX can be field configured for 8 different impedance transformation ratios, matching antennas with feed-point impedances of between 3 and 37 ohms to a 50-ohm coaxial feed line.

THEMATCHBOX is designed for outdoor installation and is housed in a heavy-duty, weatherproof aluminum enclosure for mounting at the antenna feed point. Top and bottom flanges on the enclosure allow for simple installation on a variety of support types.

### SPECIFICATIONS

| Impedance Ratio | Feed-Point Impedance |
|-----------------|----------------------|
| 1:16            | 3.1 $\Omega$         |
| 1:12            | 4.2 $\Omega$         |
| 1:9             | 5.6 $\Omega$         |
| 1:4             | 12.5 $\Omega$        |
| 1:3             | 16.7 $\Omega$        |
| 1:2.25          | 22.2 $\Omega$        |
| 1:1.75          | 28.6 $\Omega$        |
| 1:1.4           | 35.7 $\Omega$        |

|                     |                                                      |
|---------------------|------------------------------------------------------|
| Power Rating        | 300 Watts Continuous.                                |
| Frequency Range     | 100 kHz to 1.7 MHz.                                  |
| Construction        | Multi-Filar on Medium Permeability MnZn Toroid Core. |
| Impedance Selection | Internal Jumper/Screw Terminals.                     |
| Accessories         | Mounting Straps; Ground Jumper/Clamp.                |
| Connectors          | Coax: SO239; Ground: Internal Stud                   |
| Dimensions          | Height 6.25"; Width 4.0"; Depth 3.25".               |
| Height with Flanges | 7.5".                                                |
| Cover Attachment    | 4 Screws.                                            |
| Weight              | 2.5 lbs.                                             |
| NEMA Rating         | 2, 3, 4, 4X, 6, 12 and 13.                           |
| IP Rating           | IP68.                                                |

## INSTALLATION & USE

Mount the enclosure on the support pole near the bottom of the base pipe.

Use screws or the provided tool-less, stainless-steel straps that run through the holes in the enclosure tabs for mounting.

Run a 10 to 12-gauge wire from the ground stud inside the enclosure through the cable gland and connect it to your groundplane.

Use corrosion retardant where appropriate. A temporary feedline and ground jumper are provided for your convenience to use during tuning.

Connect your coax run to the feedline adapter and the feedline ring lug to the feedline stud on the base of the antenna.

Connect the ground jumper clamp to the adapter.

After tuning the antenna per the instructions, remove the temporary cables and consult the chart below for the resistance value that most closely matches that of the antenna.



*(INSTRUCTIONS CONTINUED ON NEXT PAGE)*

Connect the internal jumper from the SO239 and the permanent antenna feedline to the appropriate terminals per the chart below.

| Measured Antenna Resistance (Approx.) | Use Connections            |         |
|---------------------------------------|----------------------------|---------|
|                                       | Transmitter (50 $\Omega$ ) | Antenna |
| 36.76 $\Omega$                        | F                          | A       |
| 28.13 $\Omega$                        | D                          | A       |
| 22.22 $\Omega$                        | E                          | B       |
| 16.34 $\Omega$                        | F                          | B       |
| 12.5 $\Omega$                         | D                          | B       |
| 5.5 $\Omega$                          | E                          | C       |
| 4.1 $\Omega$                          | F                          | C       |
| 3.1 $\Omega$                          | D                          | C       |

Connect your coax run to the SO.239 connector on the bottom of the transformer enclosure and connect the 24-inch antenna feedline to the base of the antenna.

Warranty – Information Station Specialists (doing business as The Radio Source) provides a one-year, limited warranty on new products against defects in materials and workmanship under normal use. We also provide repair and replacement and, best of all, remote technical support for the life of the product. [See our promise.](#)

How to Order – Information Station Specialists, Inc., doing business as The Radio Source, is the manufacturer of the Lowdown Antenna for amateur (ham) radio operators. To provide convenient ordering and customer service, the Lowdown Antenna and its accessories are sold through [DX Engineering](#).