

# **AUTOMATIC TUNING ANTENNA**

**FAD 1410**

## **User's Manual**



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## 1. APPLICATION

Automatic Tuning Antenna (FAD 1410) is used for 125W HF (1.6 – 30 MHz) radio transceiver the FAD 1410 has 50 Ohm input impedance with  $VSWR \leq 1.4$  within 1.6 – 30 MHz frequency band.

## 2. SPECIFICATIONS

**Table 1**

Frequency Band	- 1600 to 30000 kHz.
Input Power	- Nominal 125 W
Tuned Antenna Input Impedance	50 Ohm with $VSWR \leq 1.4$ .
Tuning time by algorithm	- Not more than 3s.
Tuning time from the memory on pre-programmed frequencies	- Not more than 0.3s.
RF power used for tuning	3 to 6 W
Power supply voltage	+12VDC with less than 1.2A
Dimensions	
- Tuning unit	530 x 128 x 114 MM
- Whip	6 ft.
Weight	4.5 kg / 9.9 lbs
Operation Temperature Range	- 30 to 60° C / -22° to 140° F
Storage Temperature Range	- 40 to 85° C / -40° to 185° F
Humidity	95% -20 to 85 ° C / -4° to 185° F

### **3. FAD 1410 Mechanical Design**

FAD 1410 comprises of:

- Tuning Unit;
- 6 ft Whip Antenna.

The FAD 1410 is mounted on M16 threaded rod flange.

Tuning Unit has waterproof plastic case and shock-absorbing base.

High voltage isolator is placed on the top of Tuning Unit and provides connection to Whip Antenna with thread bushing. At the Tuning Unit case there is an RF connector that provides connection to radio transceiver. 0.3 m ground bus is installed on the base.

## 5. FAD 1410 INSTALLATION AND OPERATION DIRECTIONS

### Attention!

- 1. Installation of FAD 1410 should be performed by qualified specialists only.**
- 2. Installation of FAD 1410 does not require removing of the upper cover.**
- 3. When the FAD 1410 case cover is opened measures should be taken not to ingress dust, moisture and unwanted things inside.**
- 4. Before you switch on FAD 1410 make sure that FAD 1410 is well grounded and the whip is mounted.**

#### *5.1.Placement of FAD 1410*

FAD 1400 should be placed on vehicle's roof or bumper, or on the roof of a building. There should be no metal obstacles around the antenna radius of 6 to 10 m. If it is installed on non-metal vehicle roof or at the building with non-metal roof there should be provided with radial copper wires of thickness 5-6 sq. mm. The number of wires should not be less than 6.

#### *5.2. Mounting of FAD 1410*

FAD 1400 is mounted vertically with M16 threaded rod.

If the mounting surface is metal then paint cover must be removed at a radius of 40 mm around the mounting holes and, the surface must be grounded.

FAD 1400 must be grounded with 0.3 m bus finished with M8 terminal attached to the antenna base.

FAD 1400 should be connected to a radio using 50 Ohm 20 m RF cable.

RF cable connection should be made through RF connector placed at FAD 1410 case.