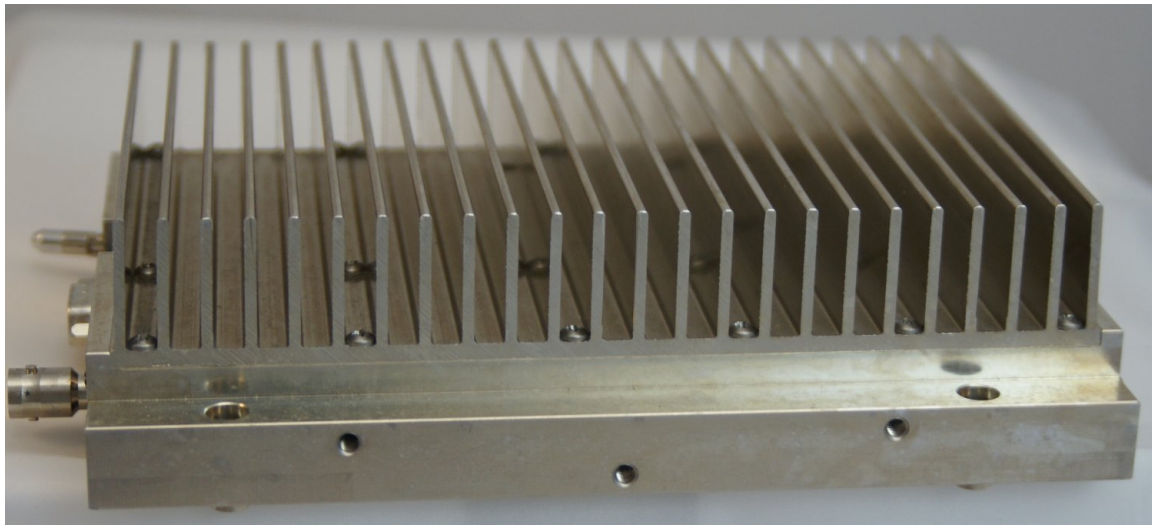




**VAL AVIONICS LTD**

# **AWOS 2000**

**VHF Transmitter**



## **Owners / Installation / Operation Manual**

Revision 8

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P/N 172210

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## **General Information**

The AWOS 2000 is a 760-channel communication transmitter and is designed to provide one way communication within the frequency range of 118.000 MHz to 136.975 MHz in 25 kHz increments.

The AWOS 2000-communication transmitter was designed to conform to FAA Advisory Circular 150/5220-16C for use as a ground based VHF transmitter for Automated Weather Observing Systems (AWOS).

The AWOS 2000 communication transmitter has Federal Communications Commission (FCC) type acceptance filed under FCC ID: EZN5PRAWOS2000

The AWOS 2000 consists of two major sections: Main Board and Transmitter Board.

## **Specifications**

Physical Dimensions:	Width: 5.9 inches
	Height: 2.3 inches
	Length: 7.45 inches
Weight	3.0 Lbs.
Voltage:	13.75 ± 2.5 Vdc
Current:	Standby 250 mA; Transmit 2.0 A
Frequency Range:	118.000 to 136.975 MHz
Channel Spacing	25 kHz
Frequency Stability:	.001%
Spurious Emissions	Greater Than 80 dB down from carrier
Modulation	Adjustable (50 to 95% Typical)
Temperature Range	-35 to +60 Degrees Celsius
Transmit Power:	2.5 watts
Emission	6K 00A3E
Duty Cycle	100%
Design	All Solid State. Printed Circuit Board & Point to Point Wiring.
Mounting	Rigid Mounting, No Shock Mounting Required.
FCC ID	EZN5PRAWOS2000
Unit Part Number	0800202

## Operation

### CONTROLS:

ON/OFF SWITCH turns on and off the main power to the unit.

INDICATOR LIGHTS (Power LED) Illuminates when the unit is powered up.

(PTT LED) Illuminates when the unit is transmitting.

(Modulation LED) Illuminates due to modulation

DB-9 CONNECTOR connections for power, ground, mic audio, and transmit key are made at this connector.

ANTENNA JACK connects to a broad band VHF 50 Ohm loaded antenna

FREQUENCY CALIBRATION capacitor C427 can be adjusted to center the output frequency.

MODULATION ADJUST potentiometer R423 can be adjusted to vary the modulation level.

POWER ADJUST potentiometer R419 can be adjusted to vary the output power.

DIPSWITCHES M0-M4 selects the whole MHz frequency (see table 2, page 8)

DIPSWITCHES K2-K5 selects the tenth MHz frequency (see table 2, page 8)

DIPSWITCHES K0-K1 selects the 25 kHz spacing (see table 2, page 8)

## INSTALLATION

This section contains suggestions and factors to consider before installing the AWOS 2000 transmitter. Close adherence to these suggestions will assure more satisfactory performance from the equipment.

The AWOS 2000 installation will conform to standards designated by the customer, installing agency, and existing conditions as to the unit location and type of installation. The installing agency will supply and fabricate all external cables for interface to their system as appropriate. VAL Avionics, Ltd will supply the connectors required.

### Unpacking and Inspecting

Unpack the equipment and inspect each item for evidence of damage incurred during shipment. If a damage claim must be filed, save the shipping container and all packing materials to substantiate your claim. The claim should be filed with the Transportation Company as soon as possible. The shipping container and packing material should be saved in any case in the event that storage or reshipment of the equipment is necessary.

### Installation Settings and Adjustments

The AWOS unit should be allowed to operate in the transmit mode for a time period sufficient to allow the components and temperature to stabilize.

**Selecting Frequency.** The desired frequency is selected by setting the eleven switches on DS401 and DS402 located on the bottom of the unit. The operating frequency is then selected by setting the switches in accordance with the Truth Table on page 8. Fine-tuning the frequency is achieved by adjusting C427. *(The AWOS 2000 is set at the factory at 118.9 MHz)*

**Setting Power Level.** Adjust R419 for the proper power setting. (2.5 watts).

**Setting Modulation.** With a standard audio tone applied at the audio input adjust R423 to the desired modulation level.

**NOTE: FINAL MODULATION AND POWER LEVELS MUST BE SET WITH THE AWOS 2000 CONNECTED TO SITE ANTENNA.**

## **Cooling Requirements**

The most important consideration to improved reliability of this equipment is to limit the maximum operating temperature. While modern designs consume less total energy, the heat dissipated per unit volume (Watts/cubic inch) remains much the same due to contemporary high-density packaging techniques. While each individual unit may or may not require forced air cooling, the combined heat generated by several various units within a typical AWOS cabinet assembly can significantly degrade the reliability of the AWOS 2000 transmitter if provisions for adequate cooling are not incorporated in the particular installation.

The AWOS 2000 transmitter is designed to operate within a temperature range of –35 to +60 degrees Celsius. The installing agency will be responsible for providing mounting and operating environments that do not exceed the operating temperature range specified.

**FAILURE TO PROVIDE THIS TYPE OF INSTALLATION ENVIRONMENT WILL VOID THE MANUFACTURERS WARRANTY!**

## AWOS 2000 TRANSMITTER

### PIN ASSIGNMENT

The pin assignment and function for P401/J401 are as follows:

PIN TERMINAL	FUNCTION
1	GROUND (AUDIO RETURN)
2	POWER INPUT (+13.75 Vdc)
3	POWER INPUT (+13.75 Vdc)
4	TRANSMITTER KEY
5	GROUND
6	GROUND (KEY RETURN)
7	GROUND
8	
9	AUDIO IN

Table 1: AWOS 2000 DB9 Pinout



**AWOS 2000 TRANSMITTER**

**AWOS 2000 FREQUENCY SELCT CHART**

	M4	M3	M2	M1	M0		K5	K4	K3	K2		K1	K0
118.XXX	0	1	0	1	1	XXX.0	0	1	1	0	XXX.X00	0	0
119.XXX	0	1	1	0	0	XXX.1	0	1	1	1	XXX.X25	0	1
120.XXX	0	1	1	0	1	XXX.2	1	0	0	0	XXX.X50	1	0
121.XXX	0	1	1	1	0	XXX.3	1	0	0	1	XXX.X75	1	1
122.XXX	0	1	1	1	1	XXX.4	1	0	1	0			
123.XXX	1	0	0	0	0	XXX.5	1	0	1	1			
124.XXX	1	0	0	0	1	XXX.6	1	1	0	0			
125.XXX	1	0	0	1	0	XXX.7	1	1	0	1			
126.XXX	1	0	0	1	1	XXX.8	1	1	1	0			
127.XXX	1	0	1	0	0	XXX.9	1	1	1	1			
128.XXX	1	0	1	0	1								
129.XXX	1	0	1	1	0								
130.XXX	1	0	1	1	1								
131.XXX	1	1	0	0	0								
132.XXX	1	1	0	0	1								
133.XXX	1	1	0	1	0								
134.XXX	1	1	0	1	1								
135.XXX	1	1	1	0	0								
136.XXX	1	1	1	0	1								

Table 2: DIP Switch Frequency Settings

**AWOS 2000 TRANSMITTER**

**Exploded Photographs:**

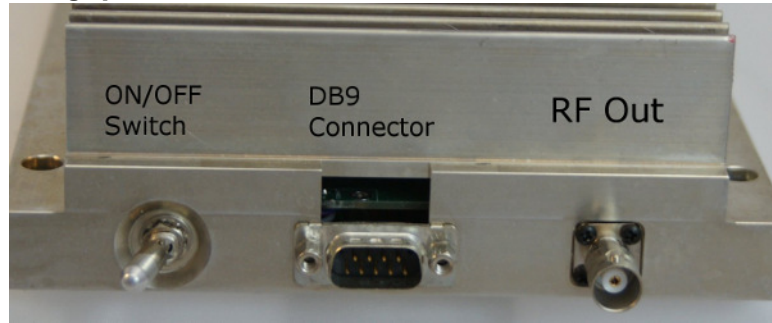


Figure 1: AWOS 2000 Connectors

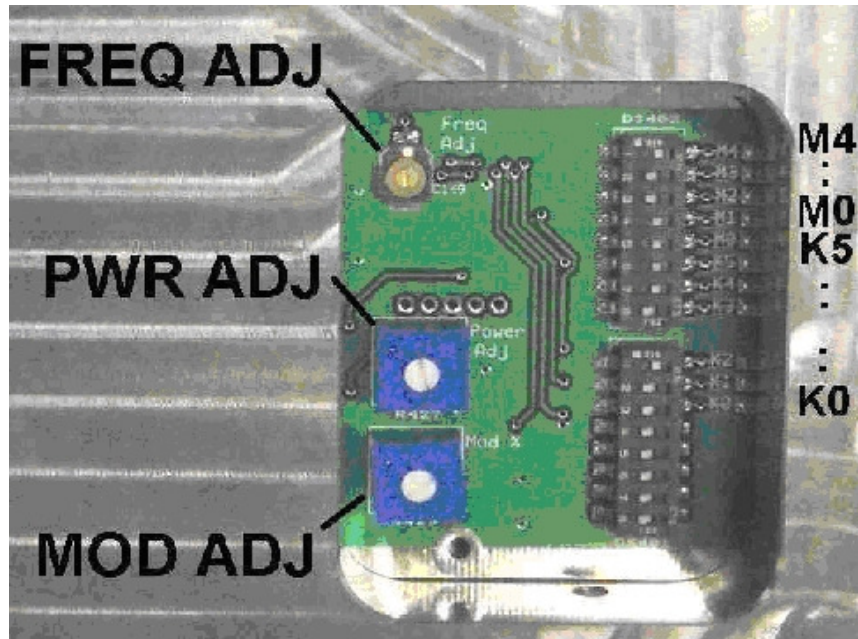


Figure 2: AWOS 2000 Controls

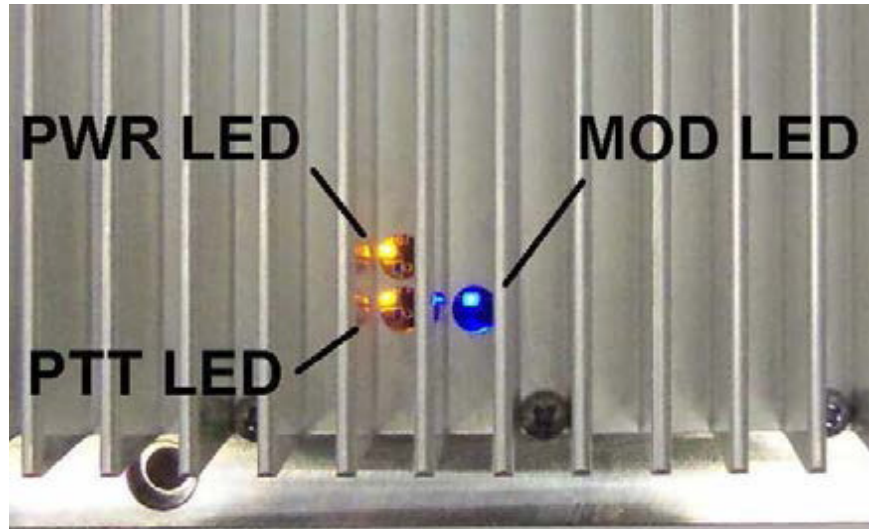


Figure 3: AWOS 2000 Indicator Lights