

**AC150W  
POWER SUPPLY / SYSTEM MONITOR  
TECHNICAL MANUAL**

Revision D

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No other warranty is expressed or implied and we are not liable for consequential damages. For repairs outside of the warranty period, the same procedure must be followed.

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# **CHAPTER 1**

## **DESCRIPTION OF EQUIPMENT**

### **1.1 INTRODUCTION**

This manual provides information on the installation and operation of the AC150W Power Supply / System Monitor. Chapter 1 contains a general description of the product. Chapter 2 contains installation instructions. Chapter 3 contains operating instructions. Chapter 4 provides the theory of operation. Chapter 5 contains maintenance and troubleshooting information.

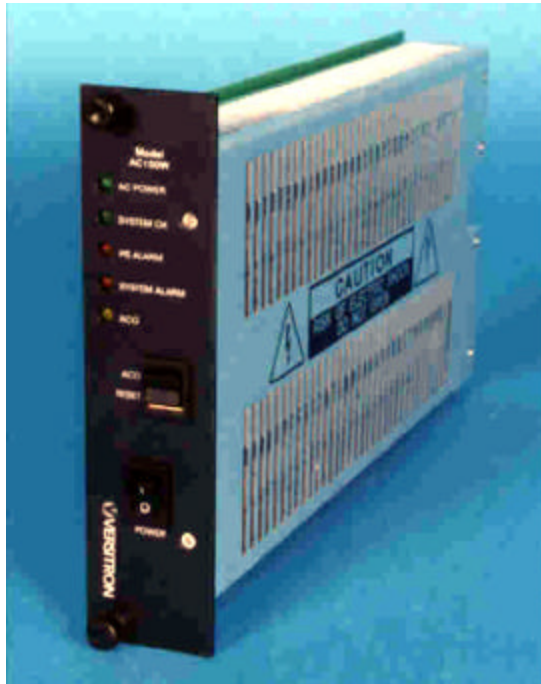
### **1.2 DESCRIPTION OF EQUIPMENT**

#### **1.2.1 FUNCTIONAL CHARACTERISTICS**

VERSITRON Model AC150W Power Supply / System Monitor provides DC power to any VERSITRON FOM II fiber optic modem product when used in the Model HF-20 FOM II rack mount chassis. The power supply is designed for a redundant power configuration and includes provisions for monitoring signal links with alarms.

#### **1.2.2 PHYSICAL CHARACTERISTICS**

The AC150W Power Supply / System Monitor measures 7.0" H x 1.7" W x 12.0" D (17.78 x 4.32 x 30.48 cm). The AC150W utilizes two slots of the HF-20 chassis. Like the FOM II modems the AC150W has a 12-pin power connector on its back panel that must seat properly when installed in the HF-20 chassis. The front panel of the AC150W contains two switches: POWER on/off, and Alarm contact off (AC) / Alarm reset. The front panel also contains five indicator LEDs: AC Power, System OK, PS Alarm, System Alarm and ACO.



**FIGURE 1. MODEL AC150W  
POWER SUPPLY / SYSTEM MONITOR**

### **1.3 SPECIFICATIONS**

**Power Requirements:** Input – 115/230 VAC,  $\pm 10\%$ ; 47-63 Hz (auto selected).  
Output – 12 VDC, 12.5 Amp.

**Line Fuse:** For 230 VAC operation – 3AG, 1 Amp, 250 V slo-blo.  
For 115 VAC operation – 3AG, 2 Amp, 250 V slo-blo.

**Alarm Relay Contacts:** Rated for 1000 Vrms, 60 Hz between open contacts. 1500 V  
FCC Part 68 surge test isolation.

**Dimensions:** 7.0" H x 1.7" W x 12.0" D (17.78 x 4.32 x 30.48 cm).

**Environment:** 0° to +40°C (32° to +104°F) operating temperature; up to 95% relative  
humidity (non-condensing); up to 10,000 feet altitude; -40° to +70°C (-40° to +158°F)  
storage temperature.

**Thermal Considerations:** 0° to +30°C (32° to +86°F) with natural convection not  
impeded; external forced air cooling with airflow of 100 linear feet per minute will allow  
full rated power at up to +40°C (+104°F).

**Weight:** 40 oz (1.25 kg).

## **CHAPTER 2 INSTALLATION**

### **2.1 GENERAL**

This chapter contains information on the installation and initial checkout of the AC150W Power Supply / System Monitor. Paragraph 2.2 contains general information on the chassis installation. Paragraph 2.3 describes the input power requirements. Paragraph 2.4 contains initial checkout procedures.

### **2.2 INSTALLATION IN CHASSIS**

The AC150W Power Supply / System Monitor is designed to fit into the VERSITRON HF-20 FOM II 19" rack mount chassis. The power supply may be used with from 1 to 18 FOM II modems. Fully redundant power may be realized by simply adding a second AC150W. Installation of an AC150W is recommended at each end of the HF-20 in order to balance out the current draw of the modems. (Please note that redundant power is necessary when F2238, F2240 or F2245 modems are installed into the HF-20 due to the current draw requirement of these modems.) The power supply is installed by inserting both the top and bottom edge of the circuit card (left side of unit) into the slot guides of the HF-20. Push the unit fully into the chassis so that there is a full connection between the 12-pin power connector on the back panel and the chassis. The front panel of the AC150W contains two hand screws to secure the unit to the chassis.

### **2.3 POWER REQUIREMENTS**

The Model AC150W Power Supply / System Monitor operates with either a 115V or 230 VAC power source. The unit recognizes the input voltage so there is no switch to select between 115V or 230V. There are two different fuses and labels supplied with the AC150W. For 115 VAC operation, a 3 AG, 2 Amp, 250 V slo-blo fuse is used; for 230 VAC operation, a 3AG, 2 Amp, 250 V slo-blo fuse is used. Prior to connecting to an AC power source, check that the proper fuse is installed and that the AC power cord is connected to the AC150W.

### **2.4 INITIAL CHECKOUT PROCEDURE**

Once installed, the AC150W requires no adjustments. Before beginning system operation the following items should be checked to verify proper installation:

1. Verify that the AC150W 12-pin power connector is fully connected to the HF-20 by confirming the power supply is fully inserted and secure in the chassis slots.
2. Verify that the correct fuse and the AC power cord are installed as described in Section 2.3 above.

## **2.5 INITIAL CHECKOUT PROCEDURE (cont'd)**

3. When turning the unit on with the front panel power switch the AC POWER (green) and SYSTEM ALARM (red) LEDs should illuminate. Press the Alarm Reset switch to initialize the system alarm status. After the Alarm Reset, the System OK (green) LED should come on, the SYSTEM ALARM (red) LED should go off, and the other two LEDs should remain off.
4. If a malfunction is detected during the initial checkout procedure, refer to Chapter 5 for information on isolating the malfunction in the unit.

## CHAPTER 3 OPERATION

### 3.1 INTRODUCTION

This chapter contains a description of the operating controls of the Model AC150W Power Supply / System Monitor. The AC150W is designed for continuous and uninterrupted operation. Once the power supply is installed into the HF-20 chassis it should remain in service as long as required.

**Warning: Do not remove the cover. The power supply circuitry contains hazardous voltage levels inside. There are no user-serviceable parts inside.**

### 3.2 STATUS INDICATORS

The AC150W has five LED indicator lamps on its front panel. AC POWER (green) is illuminated when AC power is applied to the unit, the power switch is ON, and the fuse is installed into the back panel and unbroken. The SYSTEM OK LED (green) is illuminated when there are no active status alarms in the installed FOM II card circuits and AC150W power supplies. Two red LEDs provide alarm indications: PS ALARM is on if the DC output voltage drops below 10 volts, and the SYSTEM ALARM comes on if a circuit card alarm is sensed on the alarm bus of the HF-20. An ACO LED (yellow) is illuminated when the ACO front-panel switch is activated.

### 3.3 SWITCHES

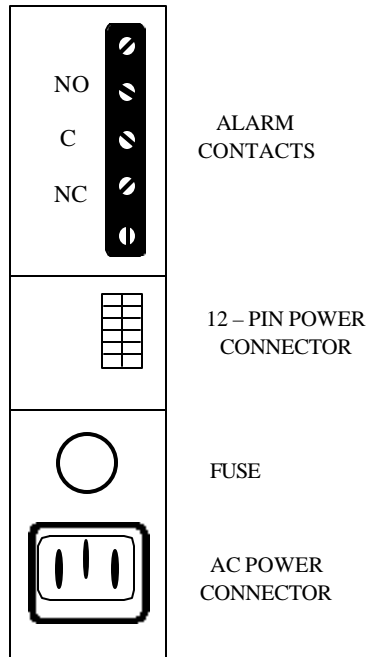
There are two switches on the front panel of the AC150W Power Supply / System Monitor. The function of the power switch is to control the AC input. The ACO (alarm contact off) / Reset switch has three functions. In the upper position this switch disables the alarm contacts that are available on the back panel of the AC150W. When the switch is pressed into the lower position, the alarms are cleared. The switch can be left in the upper position, but must be pushed and held in the lower position. In the center position the switch is OFF.

### 3.4 ALARMS

The AC150W contains circuitry to monitor the HF-20 alarm bus, the switching power supply of the unit, and to control an SPDT relay for alarm reporting. Remote alarm monitoring is possible with the alarm contacts accessible on the terminal block on the back panel of the unit. The location of the alarm relay contacts is shown in Figure 2. These contacts change state when an alarm occurs in any circuit card or AC150W installed in the HF-20, provided that the alarm contact switch (ACO) is not enabled on the front panel of the AC150W. The AC150W alarm circuitry monitors all alarms set by each circuit card, and will therefore change the relay state when there is a loss of sync (such as due to a possible failure of fiber) on a FOM II.

### 3.3 ALARMS (cont'd)

The contacts are labeled NO (normally open), C (common), and NC (normally closed). Normally open means that the contact between NO and C will close when in alarm. The contacts are rated for 1000 Vrms, 60 Hz between open contacts, with 1500 V FCC Part 68 surge test isolation. The F22xx circuit cards provide a +0.6 VDC alarm voltage, while all other FOM II cards provide +1.8 VDC.



**FIGURE 2. MODEL AC150W POWER SUPPLY / SYSTEM MONITOR  
BACK PANEL ALARM RELAY CONTACTS**

### 3.5 REDUNDANT POWER CONFIGURATION

The AC150W is designed to operate in a redundant power configuration. This is accomplished by simply adding a second AC150W to the HF-20 chassis. AC150W power supplies may be installed in any slots available but installation is recommended at opposite ends of the HF-20 to balance current draw of installed circuit cards. The alarm circuits may also be made redundant by wiring the NO-C contacts of each power supply in parallel, or by wiring the NC-C contacts in series.

## **CHAPTER 4 THEORY OF OPERATION**

### **4.1 INTRODUCTION**

The second generation of VERSITRON fiber optic modems and interface extender products, the FOM II Series, are designed to operate with 12 VDC input power. The Model AC150W Power Supply / System Monitor has been developed to provide power for up to 18 FOM II modems in a Model HF-20 chassis. (Please note that redundant power is necessary when F2238, F2240 or F2245 modems are installed into the HF-20 due to the current draw requirement of these modems.) In addition, the AC150W has circuitry to monitor the HF-20 alarm bus. The unit takes an input of 115 or 230 volts AC and transforms it into a 12 volt DC output with 12.5 amp current. The AC150W consists of a shielded AC transformer with heat sink and mini fan, and a printed circuit board containing the LED drivers, fuses, switching, and alarm contact circuitry. The unit is enclosed in an aluminum alloy housing.

## **CHAPTER 5 MAINTENANCE AND TROUBLESHOOTING**

### **5.1 INTRODUCTION**

This chapter contains general information designed to isolate a malfunction in the Model AC150W Power Supply / System Monitor to a replaceable unit. These units are not individually equipped with redundancy. Therefore, unless redundant units are installed, a failure in one of these units would interrupt service.

### **5.1 FAULT ISOLATION**

The AC150W has AC POWER and SYSTEM OK LEDs that should be illuminated when the unit is functioning normally. If the AC POWER LED is not on, check the AC power cord for proper connection to both the AC150W and the source. If the AC POWER LED is on but the other status indicators are not correct, first check that the 12-pin power connector from the AC150W is fully seated and secure in the HF-20. Next proceed with the fault isolation procedures for the FOM II modems sharing the HF-20 chassis with the power supply. If you believe that there is a problem with the AC150W, please contact VERSITRON Customer Service for assistance at (800) 537-2296 or (302) 894-0699.