

# USER MANUAL

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PHILLIPS AEROSPACE

## OVER-VOLTAGE PROTECTION MODULE USER MANUAL

782-9000

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Please notify the Phillips sales department at 626-855-4600 to obtain a Return Material Authorization (RMA) number prior to return of a product under the terms of this warranty. Notification is to include the Model and Serial numbers of the product along with full details of the problem. Modules returned should clearly show the RMA on the outside of the package.

## OVP USER MANUAL

Revision Number: 1.0  
Revision Date: 02.14.07  
Doc Reference Number: 782-9000  
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Phillips Aerospace makes every attempt to provide up-to-date manuals with the associated equipment. Occasionally, changes are made to the equipment wherein it is necessary to provide amendments to a manual. If any amendments are provided for this manual they are printed on colored paper and will be provided with the module and the manual.

## **NOTE**

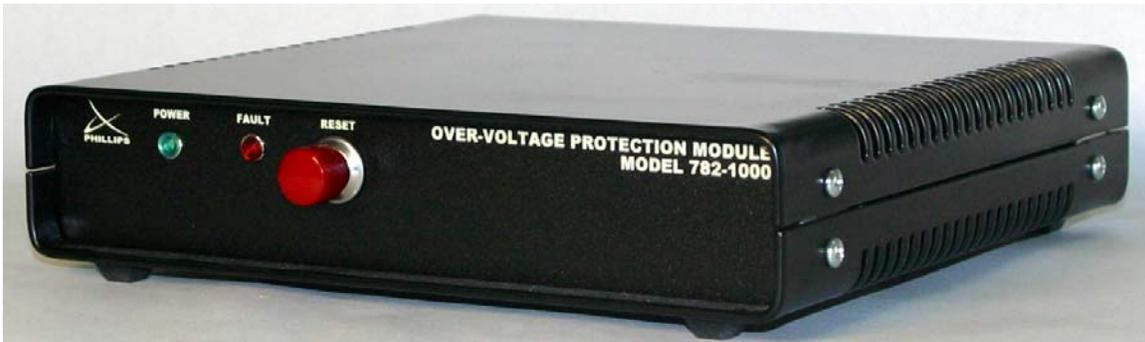
The contents of any amendment may affect operation, maintenance, or calibration of the equipment.

## INTRODUCTION

This manual describes the operation and use of the Phillips Model Over-Voltage Protection module Part Number 782-1000.

Contained within this manual are the physical and electrical specifications, installation and startup procedures, and functional description. Also included are the configuration and programming guidelines to adequately use this produce.

This manual is based on a low level register access, and is written in such a manner to provide understanding to the user based on this type of access. If a driver is provided, please refer to the driver documentation for instruction using the higher interface provided by the driver.



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## 1.0 GENERAL DESCRIPTION

### 1.1 PURPOSE OF EQUIPMENT

-The Over Voltage Protection (OVP) module created by Phillips Aerospace protects the load from critical damages that might be caused by high input voltages.

### 1.2 SPECIFICATIONS OF EQUIPMENT

-The module contains a solid-state switch that opens when the main input voltage is higher than the specified limit. It is activated when the main voltage is lower or equal to the limit.

#### 1.2.1 KEY SPECIFICATIONS

- Power: 12v @ 500mA
- Connectors:
  - In/Out: Banana Jacks
  - Shunt: Signatron 2MJ-20416000
  - 1&2 = relay control high/low
  - 3&4 = reset command contact
  - 5&6 = fault indicator out
- Capacities:
  - Low power: 40VDC @ 5A
  - High power: 190VDC @ 10A
- Voltage Trip Accuracy: +/- 1%
- Tresponse\*: 500usec \* (over-voltage condition to lines open)
- Shunts:
  - Low Power: .25  $\Omega$  @ 1%
  - High Power: .25  $\Omega$  @ 1%

Mechanical

- Mechanical dimensions: 1.75”H x 7.8”D x 8.25”W

1.2.2 ENVIRONMENTAL

The environmental specifications of the module are:

Operating Temperature:	0°C to +55°C
Storage Temperature:	-40°C to +75°C
Humidity:	<95% without condensation

## 2.0 INSTALLATION

### 2.1 UNPACKING AND INSPECTION

In most cases the OVP is individually sealed and packaged for shipment. Verify that there had been no damage to the shipping container. If damage exists then the container should be retained, as it will provide evidence of carrier caused problems. Such problems should be reported to the carrier immediately as well as to Phillips. If there is no damage to the shipping container, carefully remove the module from its box and anti static bag and inspect for any signs of physical damage. If damage exists, report immediately to Phillips.

### 2.2 HANDLING PRECAUTIONS

The OVP contains components that are sensitive to electrostatic discharge. When handling the module for any reason, do so at a static-controlled workstation, whenever possible. At a minimum, avoid work areas that are potential static sources, such as carpeted areas. Avoid unnecessary contact with the components on the module.

Opening of the OVP shielded protective cover voids the manufacturer's warranty. Do so only under direction of the manufacturer.



## 2.3 INSTALLATION OF OVP

**CAUTION:** Read the entire Users Manual before proceeding with the installation and application of power.

1. To power the OVP module, connect the supplied AC Wall Adapter to JP1. POWER LED will turn on when the unit is powered.
2. Connect input voltage source to the V POS IN (J1) and V NEG IN (J2). Refer to Table 1 for input voltage limitations.

OVP Module	782-1000-1	782-1000-2	782-1000-3	782-1000-4
<b>Trip Voltage</b>	50V	200V	50V	74V
<b>Amperage</b>	40A	11A	40A	3A
<b>Shunt Resistance</b>	N/A	N/A	0.01Ω	0.25 Ω

**Table 1 OVP Module Specification**

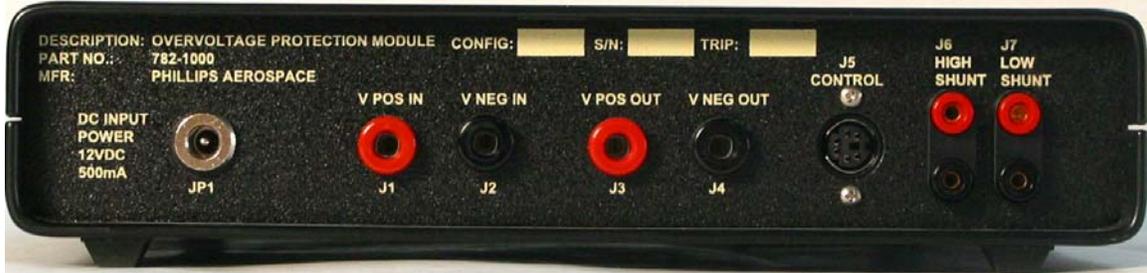
3. Connect output, V POS OUT (J3) & V NEG OUT (J4) to the UUT.
4. To find out the current passing through the UUT, connect a pair of banana plugs between external multi-meter and High Shunt (J6) and Low Shunt (J7). J6 will output the voltage measured on J1. J7 will output the voltage measured on J2.
5. With the shunt voltage outputs obtained from previous step, use Ohm's law ( $I = V/R$ ) and divide the shunt resistance provided in Table 1 to obtain the current passing through the UUT.
6. Power on your input voltage. Depending on the module's trip voltage, the module will cut output voltage to the load to 0V and FAULT LED will be on. **Note:** the trip voltage will be precise to the +/-1% of the specified trip voltage.
7. If using external control, connect a male 6-PIN DIN connector cable to J5 Control. Refer to Figure 1 for details.



**Figure 1 6-pin DIN connector pin-out**

8. To turn off the FAULT LED when it's on, a reset is necessary. When performing reset, first lower the input voltage to below the trip voltage and press and hold the RESET button until FAULT LED turns off.

- Reset can also be performed remotely by performing external reset. When performing external reset, connect the male 6-PIN DIN cable to the module and short PIN 1 & 3 until FAULT LED turns off. Refer to Figure 1 for pin-out.



## 2.4 PREPARATION FOR RESHIPMENT

If the module is to be shipped separately it should be enclosed in a suitable water and vapor proof anti static bag. Heat seal or tape the bag to insure moisture-proof closure. When sealing the bag, keep trapped air volume to a minimum.

The shipping container should be a rigid box of sufficient size and strength to protect the equipment from damage. If the module was received separately from a Phillips system, then the original module shipping container and packing material may be re-used if it is still in good condition.