Thank You!

Thank you for selecting the American Power Conversion SmartSlot Series Measure-UPS *II*. It has been designed for many years of reliable, maintenance-free service. Please read this manual! It provides installation and operating instructions that will help you get the most from your accessory. Save this manual! It includes important instructions for the safe installation of your accessory. Further, it includes instructions for obtaining factory service.

Radio frequency interference

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the users authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Contents

1. Introduction

The SmartSlot Measure-UPS *II* performs temperature and humidity sensing, as well as contact monitoring.

Measure-UPS *II* supports up to four zones of contact monitoring, each of which supports both normally open and normally closed contacts.

Measure-UPS *II* reports temperatures from 0 to 60 °C (32 to 140 °F) and relative humidity from 10 to 90%.

Measure-UPS *II* model AP9612T includes:

- Measure-UPS *II* SmartSlot UPS accessory
- Temperature probe (model AP9512T)
- Screw terminal connector for contact monitoring
- Hook and loop probe fasteners.

Measure-UPS *II* model AP9612TH includes:

- The Measure-UPS *II* SmartSlot UPS accessory
- Combined temperature and humidity probe (model AP9512TH)
- Screw terminal connector for contact monitoring
- Hook and loop probe fasteners.

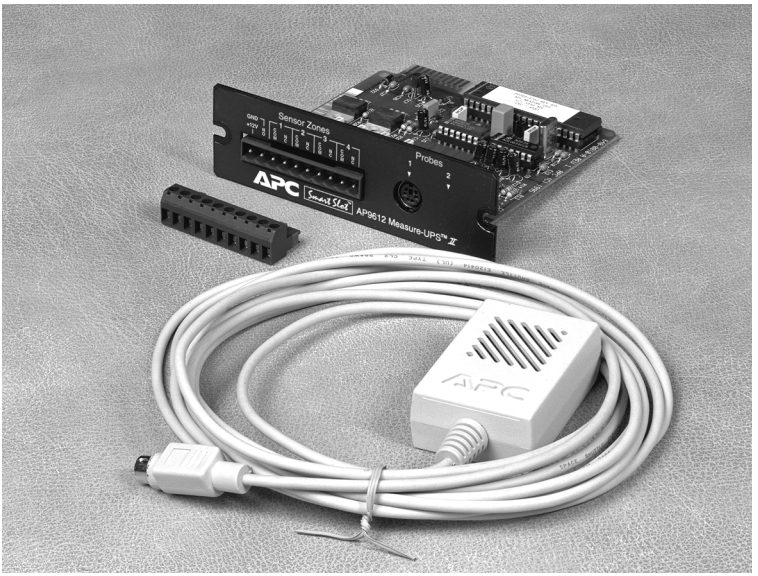


Figure 1, SmartSlot Measure-UPS II

Safety Notice

The SmartSlot Measure-UPS *II* UPS accessory is intended solely for use in supplementary surveillance of equipment. APC does not recommend this product for life or property protection. APC will not knowingly sell Measure-UPS *II* for use in such applications. APC disclaims all liability arising out of improper use of Measure-UPS *II* as described herein.

Hardware and Software Compatibility

SmartSlot Measure-UPS *II* requires an APC device with a SmartSlot as a host. This can be a UPS equipped with a SmartSlot, or a SmartSlot Expansion Chassis in combination with a UPS that supports the Expansion Chassis.

Measure-UPS *II* also requires some means of reporting its data. This can be any one or a combination of the following:

- Call-UPS *II*™ Remote UPS Management Device
- PowerChute® Plus UPS power management and diagnostic software
- PowerNet SNMP adapter
- PowerNet SNMP agent.

Note: Any SNMP management system can read and use Measure-UPS *II* information when it is installed in conjunction with an APC PowerNet SNMP adapter or PowerNet SNMP agent. PowerNet SNMP Manager provides a high level graphical user interface for use within popular network management systems. Contact APC at the number on the back cover of this manual for more information.

2. Installation

Use the following procedure to install SmartSlot Measure-UPS *II*:

1. Install and configure any software or hardware that will be used with Measure-UPS *II* for data reporting (see software and hardware compatibility above).
2. Using figure 2 as a guide, install Measure-UPS *II* in the host SmartSlot. Use a #2 Phillips head screwdriver to remove the host device SmartSlot cover plate. Install Measure-UPS *II*. Replace the cover plate screws. Note: Measure-UPS *II* is sensitive to static electricity. Handle Measure-UPS *II* by the end plate only. Do not touch the exposed printed circuit board. While it is not possible to install Measure-UPS *II* upside down, it is possible to damage it in the attempt. Note that the edges of the printed circuit board align with the locating slots in the sides of the SmartSlot. The SmartSlot may be oriented horizontally or vertically in the host device. The host device may be on or off during installation.
3. Connect the supplied probe to probe connector 1 on Measure-UPS *II*. **Note**: probe connector 2 is not used in Measure-UPS *II*.
4. Place the probe where desired using the supplied hook and loop fasteners, if needed. Note: The Measure-UPS *II* probe is designed for use in a controlled environment. Place it in an area that is within the environment limits set in the specifications (see section 9.) The location must be free from direct sunlight, excessive moisture, and dust.

Figure 2, SmartSlot installation

Do not:

- Cover any of the ventilation holes on the probe
- Immerse the probe or place it where dew can be expected to form
- Use the probe in an environment with chlorine gas or insecticides.

5. The contact monitoring connection is a two piece design. Connect contact closure-type sensors to the removable screw terminal block using the information in section 4 as a guide. The connector accepts wire sizes from 14 AWG (1.6 mm2) to 26 AWG (.4 mm2). Strip the wire insulation 0.25" (6 mm). Connect the screw terminal block to the Sensor Zones connector of Measure-UPS *II*.

See figure 3 below for a completed installation.

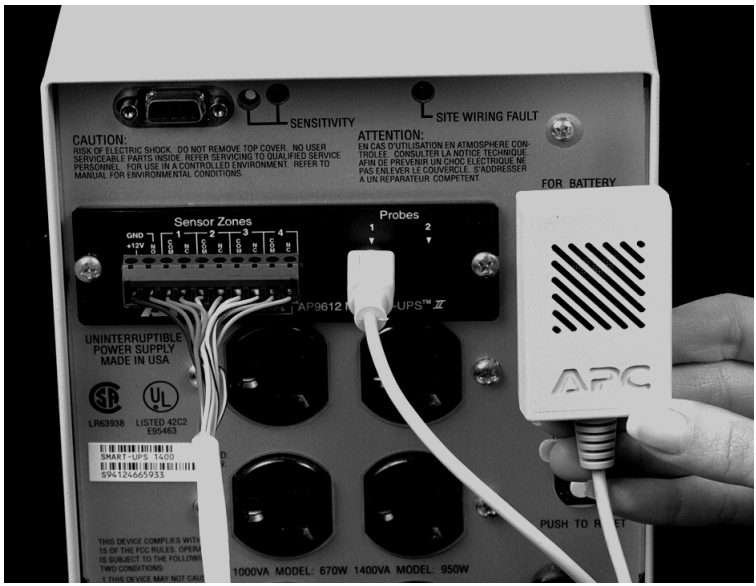
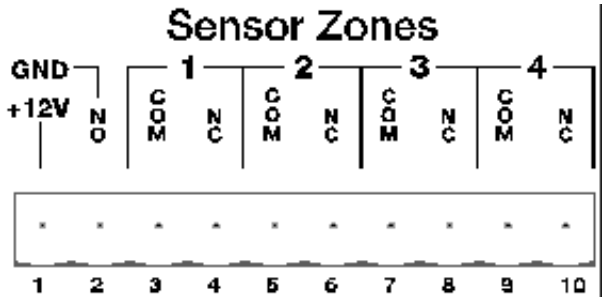


Figure 3, completed installation

3. Operation Check

1. Confirm the basic operation of Measure-UPS *II*. Use the data reporting system (see hardware and software compatibility in section 1) to confirm that Measure-UPS *II* is working. With the probe (temperature or temperature and humidity) connected to probe connector 1, Measure-UPS *II* should transmit temperature or temperature and humidity values to the reporting system. Note: Reported humidity values will be less than 2% RH when using the temperature only probe. If the probe is not properly connected both temperature and humidity readings will be very low.
2. Confirm contact sensing by activating each sensor in turn according to the sensor manufacturers recommendation. Use the data reporting system to verify that each sensor operates as planned.

4. Sensor Zone Connections

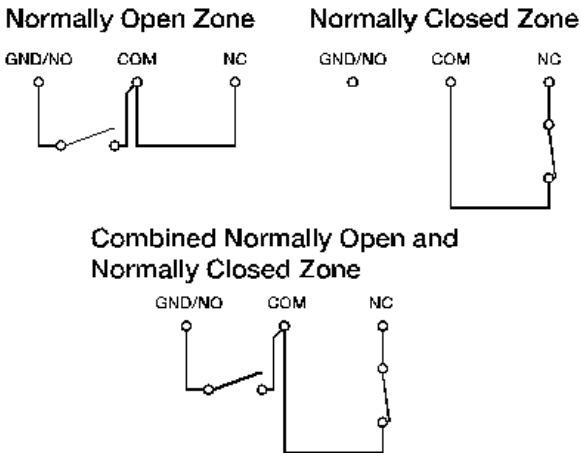


Sensor Zones Connector Pinout	
Pin	**Function**
1	power supply, +12 Vdc nominal, 60 mA max.
2	power supply ground and normally open connection for all zones
3	zone 1 common
4	zone 1 normally closed
5	zone 2 common
6	zone 2 normally closed
7	zone 3 common
8	zone 3 normally closed
9	zone 4 common
10	zone 4 normally closed

Connection Information

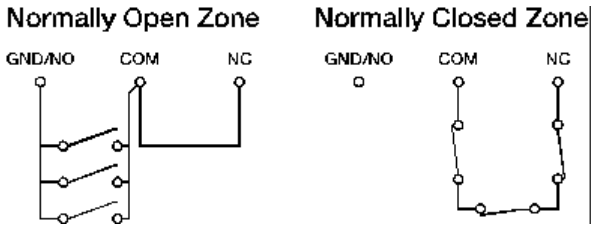
Measure-UPS *II* supports normally open and normally closed loop systems, and allows mixing of normally open and normally closed sensors on any zone. See the figures below for more information on using multiple sensors in one zone and for system hookup.

Note: Do not cross connect sensors used with Measure-UPS *II* with those of any other system.

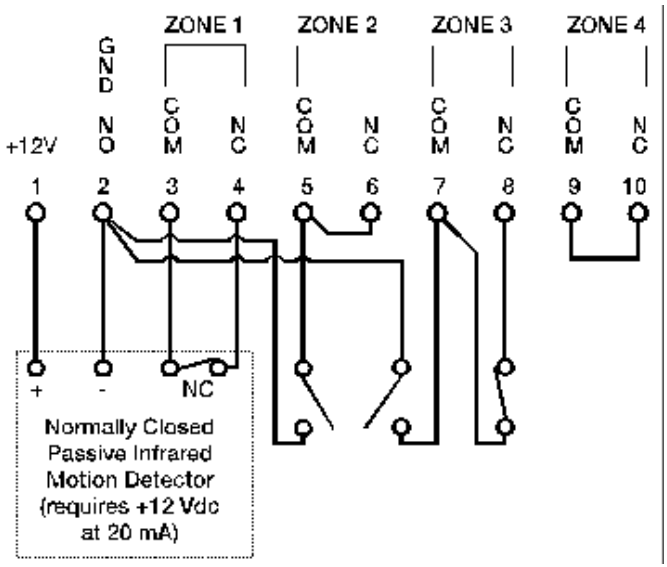


In order to avoid receiving alarm indications on unused zones, install a jumper wire between the COM and NC connectors for each unused zone.

To use more than one sensor on a zone, follow the diagram below. Connect normally open sensors in parallel and normally open sensors in series.



See below for a typical hookup. Note that in this example system zone 1 is a normally closed motion zone with power for the passive infrared detector supplied by Measure-UPS *II*. Zone 2 is a normally open zone. Zone 3 is a combination normally open and normally closed zone. Zone 4 is not used.



5. Sensor Selection

Measure-UPS *II* may be used with any dry contact closure type sensors. The Measure-UPS *II* sensor inputs are designed to monitor circuits that have no voltage potential of their own. Connection of Measure-UPS *II* sensor inputs to any circuit other than a dry closure type will void the warranty and may result in damage to Measure-UPS *II*.

In general, any normally open (NO) or normally closed (NC) dry contact sensor may be used with Measure-UPS *II*. Such sensors include:

- Magnetic contact switches
- Window foil
- Tamper switches
- Heat detectors
- Water sensors
- Pressure sensors

Additionally, Measure-UPS *II* provides a source of power for those detectors that need power. These types include:

- Passive infrared (body heat) detectors
- Smoke sensors
- Photo relay detectors

Measure-UPS *II* provides 12 Vdc at up to 60 mA at pins 1 and 2 of the Sensor Zones connector for sensors that require power.

For more information in what sensors may or may not be used with Measure-UPS *II*, please call the APC PowerFax Interactive Fax System at the number on the back cover of this manual. Request document number 1310. Or call technical support. See the back cover for more information.

6. Maintenance

Measure-UPS *II* requires periodic maintenance. Confirm contact sensing using the sensor manufacturers recommended intervals and methods. Use the data reporting system to verify that each sensor operates as planned.

Clean the temperature (or temperature and humidity) probe whenever there is a visible buildup of dust. Gently brush or vacuum off the dust. Do not blow any type of compressed gas into the probe.

7. Troubleshooting

Problem	Possible Cause	Solution
Constant Alarm on one or more unused zones.	Unused zones not jumpered.	Connect a wire between the COM and NC terminals of all unused zones (see section 4).
Constant low temperature and humidity readings.	12 Vdc supply (pin 1) shorted to ground or overloaded.	Correct short circuit—examine all sensors that use the 12 Vdc power supply.
No communication with UPS or accessories.	Measure-UPS *II* has failed.	If removing Measure-UPS *II* from the host cures the communication problem for other accessories, call technical support at the number on the back cover of this manual.
Incorrect sensor readings.	Improper sensor wiring.	Correct sensor wiring—see section 4.
Always reports very low temperature and/or humidity.	Probe not connected properly.	Connect probe properly—see section 2.

8. Service

If the SmartSlot Measure-UPS *II* requires service:

1. Check Measure-UPS *II* using the troubleshooting chart in section 7 before calling for service.
2. Note the model number of the Measure-UPS *II*, the serial number, and the date purchased. See the back cover of this manual for the correct telephone number and call customer service. A technician will ask you to describe the problem and help solve it over the phone, if possible, or will give you an RMA#. If customer service is not available in your area, call the dealer that sold the SmartSlot Measure-UPS *II*. If Measure-UPS *II* is under warranty, repairs are free. If not, there will be a charge for repair.
3. It is important to pack the SmartSlot Measure-UPS *II* properly to avoid damage in transit. Damage sustained in transit is not covered under warranty.
4. Include a letter with your name, RMA#, address, copy of the sales receipt, description of the trouble, your daytime phone number, and a check (if necessary).
5. Mark the RMA# on the outside of the package. The factory cannot accept any package without this marking.
6. Return Measure-UPS *II* and its probe by insured, prepaid carrier to the address given by the technician.

9. Specifications

Electrical

SmartSlot specification compatible

Operating voltage:	16 - 27 Vdc
Operating current draw:	30 mAdc (exclusive of any attached sensors)
Temperature accuracy:	±2° C (±3.6° F), from 0 to 40° C (32 to 104° F)
Humidity accuracy:	±8% RH, 10 to 90% RH, at 25° C (77° F); ±8% RH, 30 to 80% RH, from 15 to 30° C (from 59 to 95° F)
Sensor Zone input response time:	100 milliseconds
Power output:	12 Vdc nominal, 60 mA max. ground referenced

Physical

Size (H x W x D):	4 x 4 x 1.5 inches (10.2 x 10.2 x 3.8 cm)
Weight:	0.3 lb. (140 g)
Shipping weight:	0.7 lb. (320 g)

Environmental

Operating elevation:	0 to 3,000 m
Storage elevation:	0 to 15,000 m
Operating temperature:	0 to 40 °C (32 to 104° F)
Storage temperature:	0 to 45 °C (32 to 113° F)
Probe operating temperature:	0 to 60° C (32 to 140° F)

Approvals

EMC verification:	FCC Class A, DOC class A, EN55022 Class A
Electromagnetic immunity:	EN50082-1 verified

10. Declaration of Conformity

Application of Council Directives: 89/336/EEC

Standards to Which Conformity is Declared: EN55022, EN50082-1

Manufacturers Name: American Power Conversion
132 Fairgrounds Road
West Kingston, RI 02892 USA

Importer's Name and Address:

Type of Equipment: Measure-UPS *II*

Model Number: AP9612T, AP9612TH

Serial Numbers: A95050000001–A961299999999

Year of Manufacture: 1995, 1996

I, the undersigned, hereby declare that the equipment specified above conforms to the above directive(s).

Place: No. Billerica, MA USA

Joseph Pomata,
regulatory compliance engineer

Date: 6/1/95

Limited Warranty

American Power Conversion (APC) warrants its products to be free from defects in materials and workmanship for a period of two years from the date of purchase. Its obligation under this warranty is limited to repairing or replacing, at its own sole option, any such defective products. To obtain service under warranty you must obtain a Returned Material Authorization (RMA) number from APC or an APC service center. Products must be returned to APC or an APC service center with transportation charges prepaid and must be accompanied by a brief description of the problem encountered and proof of date and place of purchase. This warranty does not apply to equipment which has been damaged by accident, negligence, or misapplication or has been altered or modified in any way. This warranty applies only to the original purchaser who must have properly registered the product within 10 days of purchase.

EXCEPT AS PROVIDED HEREIN, AMERICAN POWER CONVERSION MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Some states do not permit limitation or exclusion of implied warranties; therefore, the aforesaid limitation(s) or exclusion(s) may not apply to the purchaser.

EXCEPT AS PROVIDED ABOVE, IN NO EVENT WILL APC BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF THIS PRODUCT, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. Specifically, APC is not liable for any costs, such as lost profits or revenue, loss of equipment, loss of use of equipment, loss of software, loss of data, costs of substitutes, claims by third parties, or otherwise.

Life support policy

Use of this equipment in life support applications where failure of this equipment can reasonably be expected to cause the failure of the life support equipment or to significantly affect its safety or effectiveness is not recommended.