Environmental Monitoring Card

AP9612TH

Installation and Quick-Start Manual

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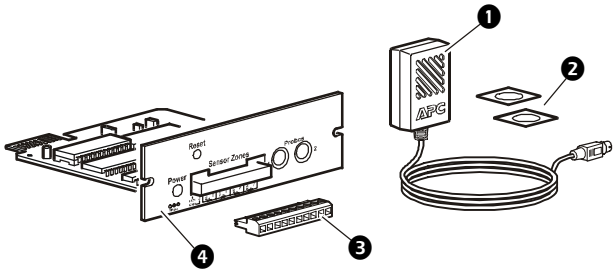
Introduction

Overview

The Environmental Monitoring Card is an American Power Conversion (APC) accessory that monitors temperature, humidity, and contacts. The card supports up to four zones of contact monitoring, and each zone supports both normally open and normally closed contacts. The card will report temperatures from 0 to 60° C (32 to 140° F) and relative humidity from 10 to 90%.

Product inventory



1. Temperature and humidity probe (AP9512TH)
2. Hook and loop probe fasteners
3. Screw terminal block for contact monitoring
4. Environmental Monitoring Card

Safety notice

The Environmental Monitoring Card is intended solely for use in the supplementary surveillance of equipment. APC does not recommend this product for protection of life or property. APC will not knowingly sell the card for use in such applications. APC disclaims all liability arising out of improper use of the card. Use the card only as described in this documentation.

Your inspection and warranty responsibilities

Inspect the card immediately, and notify the carrier and the seller if there is any shipping damage. Fill out and return the enclosed warranty card before you begin using the unit.

Hardware requirements

The card requires an APC device with an available accessory slot. This device can be a UPS with an accessory slot or an Expansion Chassis with a supporting UPS.

Data reporting

The card also requires some means of reporting its data. The following APC products can report data for the card:

- Network Management Card (AP9617, AP9618, AP9619)
- Out-of-Band Management Card (AP9608)
- PowerChute Business Edition and PowerChute Network Shutdown UPS power management and diagnostic software
- PowerNet Adapter
- Other APC products that support Web-based or SNMP management.

Installation

How to install the card

First install your UPS, and then install the Environmental Monitoring Card in a slot, as follows:

1. Shut down protected equipment and turn off the UPS.

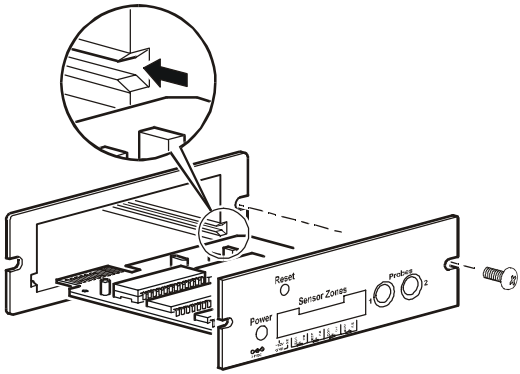
Warning **Failure to turn off the UPS could result in damage to your Environmental Monitoring Card.**

2. Use a #2 Phillips screwdriver to remove the two screws holding the plate that covers the card slot. Save the screws and the plate.

Warning **Handle the card by the faceplate only. Do not touch the exposed printed circuit board.**

3. Slide the card into the slot as shown in the following figure. The faceplate of the card should be flush with the front of the card slot.

Warning **Inserting the card upside down can damage the card. The sides of the printed circuit board must align with the card guides in the sides of the slot.**



4. Secure the card with the screws removed in step 2.

How to connect the card

1. Connect the supplied probe to probe connector 1 on the card. Place the probe using the supplied hook and loop fasteners, if needed.

Note

Use the probe on a flat surface in a protected area with adequate air flow and minimal dust. Do not operate the probe where temperature and humidity are outside the limits specified on page 10.

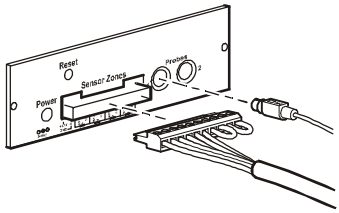
Warning

Do not cover the ventilation holes on the probe.

Do not immerse the probe or place it where dew can form.

Do not use the probe in an environment with chlorine gas or insecticides.

2. To use contact monitoring, connect contact sensors to the removable screw terminal block. (See “Sensor Zone Connections” on page 6). The contact monitoring connection is a two-piece design. Strip 0.25" (6 mm) of the wire insulation . The connector accepts wire sizes from 14 AWG (1.6 mm²) to 26 AWG (0.4 mm²).
3. Connect the screw terminal block to the sensor zones connector of the card. The figure below shows Zones 1 and 2 in use and Zones 3 and 4 open.



How to test the card

1. Use your data reporting system to confirm that the card is working. (See page 2.)
2. Check that the probe is connected to probe connector 1. The card should transmit temperature and humidity values to the reporting system.
3. Activate each sensor according to the sensor manufacturer's recommendation. Use the data reporting system to verify that each sensor operates.

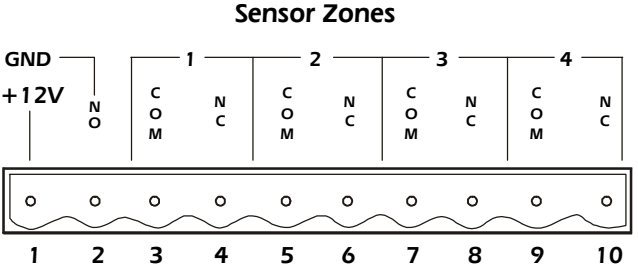
Periodic maintenance

The Environmental Monitoring Card requires the following maintenance:

- Test the card periodically according to the sensor manufacturer's recommendations. See "How to test the card" .
- Clean the probe whenever there is a visible buildup of dust. Gently brush or vacuum off the dust. Do not blow any type of compressed air into the probe.

Sensor Zone Connections

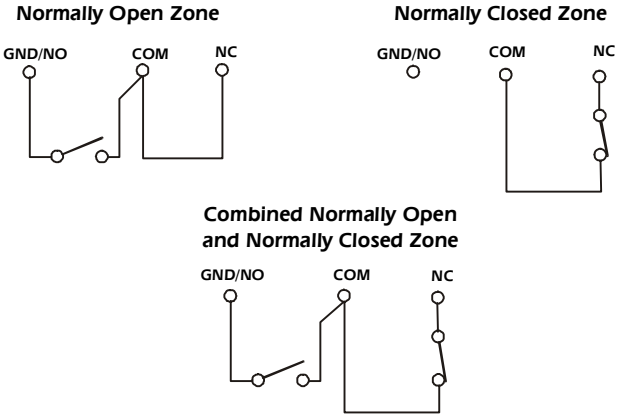
Sensor zones and pin location



Pin	Function
1	power supply, +12 VDC nominal, 60 mA maximum
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

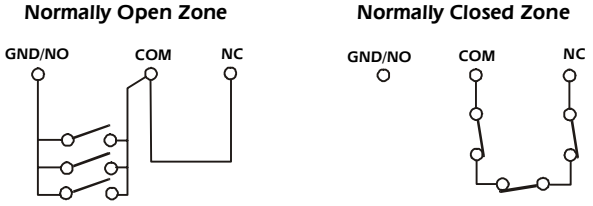
Connection information

The Environmental Monitoring Card supports normally open and normally closed loop systems, and allows mixing of normally open and normally closed sensors on any zone. Do not cross-connect the card's sensors with sensors from any other system.



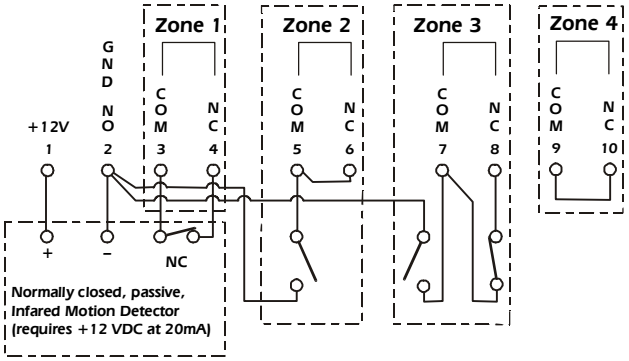
Multiple sensors in a zone

To use more than one sensor on a zone, connect normally open sensors in parallel and normally closed sensors in series. To avoid receiving alarm indications on unused zones, install a jumper wire between the COM and NC connectors for each unused zone.



Sample setup

In this example of a typical setup, system Zone 1 is a normally closed motion zone with power for the passive infrared detector supplied by the card. Zone 2 is a normally open zone, Zone 3 is a combination of a normally open and normally closed zone, and Zone 4 is not used.



Sensor Selection

Dry contact sensors

The Environmental Monitoring Card may be used with any dry contact closure sensors. The card's sensor inputs monitor circuits that have no voltage potential of their own.

Connecting the card's sensor inputs to any circuit other than a dry closure type will void the warranty and may result in damage to the card.

Normally open and normally closed sensors

Any normally open (NO) or normally closed (NC) dry contact sensor may be used with the card. Such sensors include:

- magnetic contact switches
- window foils
- tamper switches
- heat detectors
- water sensors
- pressure sensors

Detectors that need power

The card provides 12 VDC at up to 60 mA at pins 1 and 2 of the sensor zones connector for sensors that require power. These include:

- passive infrared (body heat) detectors
- smoke sensors
- photo relay detectors

For more information

For a list of supported sensors, go to the APC Web site at **www.apc.com/support**. Follow the link to Knowledge Base and enter **sensors** in the search box at the bottom of the page. You may also call APC Customer Support at a number on the back cover for more information.

Specifications

Product specifications

Item	Specification
Electrical	
Operating voltage	16 – 27 VDC
Operating current draw	30 mA DC (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)
Physical	
Size (h × w × d)	3.8 cm × 10.2 × 10.2 (1.5 i × n4 × 4)
Weight	140 g (0.3 lb)
Shipping weight	320 g (0.7 lb)
Environmental	
Elevation: Operating: Storage:	 0 to 3000 m (0 to 10,000 ft) 0 to 15 000 m (0 to 50,000 ft)
Temperature: Operating: Storage:	 0 to 40° C (32 to 104° F) – 25 to 65° C (–13 to 149° 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	EN55024 verified

Warranty and Service

Limited warranty

APC warrants the Environmental Monitoring Card 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. This warranty does not apply to equipment that 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.

Warranty limitations

Except as provided herein, APC makes no warranties, express or implied, including warranties of merchantability and fitness for a particular purpose. Some jurisdictions 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. This warranty gives you specific legal rights and you may also have other rights, which vary according to jurisdiction.

Obtaining service

To obtain support for problems with your Environmental Monitoring Card:

1. Note the serial number and date of purchase. These may be located on the bottom of your card.
2. Contact Customer Support at a phone number on the back cover of this document. A technician will try to help you solve the problem by phone.
3. If you must return the product, the technician will give you a return material authorization (RMA) number. If the warranty expired, you will be charged for repair or

replacement.

4. Pack the unit carefully. The warranty does not cover damage sustained in transit. Enclose a letter with your name, address, RMA number and daytime phone number; a copy of the sales receipt; and a check as payment, if applicable.
5. Mark the RMA number clearly on the outside of the shipping carton.
6. Ship by insured, prepaid carrier to the address provided by the Customer Support technician.

Life Support Policy

General policy

American Power Conversion (APC) does not recommend the use of any of its products in the following situations:

- In life-support applications where failure or malfunction of the APC product can be reasonably expected to cause failure of the life-support device or to affect significantly its safety or effectiveness.
- In direct patient care.

APC will not knowingly sell its products for use in such applications unless it receives in writing assurances satisfactory to APC that (a) the risks of injury or damage have been minimized, (b) the customer assumes all such risks, and (c) the liability of American Power Conversion is adequately protected under the circumstances.

Examples of life-support devices

The term *life-support device* includes but is not limited to neonatal oxygen analyzers, nerve stimulators (whether used for anesthesia, pain relief, or other purposes), autotransfusion devices, blood pumps, defibrillators, arrhythmia detectors and alarms, pacemakers, hemodialysis systems, peritoneal dialysis systems, neonatal ventilator incubators, ventilators (for adults and infants), anesthesia ventilators, infusion pumps, and any other devices designated as "critical" by the U.S. FDA.

Hospital-grade wiring devices and leakage current protection may be ordered as options on many APC UPS systems. APC does not claim that units with these modifications are certified or listed as hospital-grade by APC or any other organization. Therefore these units do not meet the requirements for use in direct patient care.

www.apc.com

APC Worldwide Customer Support

Customer support for this or any other APC product is available at no charge in any of the following ways:

- Visit the APC Web site to find answers to frequently asked questions (FAQs), to access documents in the APC Knowledge Base, and to submit customer support requests.
  - **www.apc.com** (Corporate Headquarters)
    Connect to localized APC Web sites for specific countries, each of which provides customer support information.
  - **www.apc.com/support/**
    Global support with FAQs, knowledge base, and e-support.
- Contact an APC Customer Support center by telephone or e-mail.
  - Regional centers:

APC headquarters U.S., Canada	(1)(800)800-4272 (toll free)
Latin America	(1)(401)789-5735 (USA)
Europe, Middle East, Africa	(353)(91)702020 (Ireland)
Japan	(0) 35434-2021

  - Local, country-specific centers: go to **www.apc.com/support/contact** for contact information.

Contact the APC representative or other distributor from whom you purchased your APC product for information on how to obtain local customer support.

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