

 **NETCOM<sup>®</sup> MODEL RCD-1**  
LOW COST PASSIVE DEHYDRATORS

 **NETCOM<sup>®</sup> MODEL RCD-3**  
LOW COST PASSIVE DEHYDRATORS

 **NETCOM<sup>®</sup> MODEL RCD-5**  
LOW COST PASSIVE DEHYDRATORS

 **NETCOM<sup>®</sup> MODEL RCD-2**  
LOW COST SELF-PUMPING™ PASSIVE DEHYDRATOR

 **NETCOM<sup>®</sup> MODEL RCD-4**  
LOW COST SELF-PUMPING™ PASSIVE DEHYDRATOR

 **NETCOM<sup>®</sup> MODEL RCD-6**  
LOW COST SELF-PUMPING™ PASSIVE DEHYDRATOR

## INTRODUCTION

The RCD line of passive dehydrators keeps small volume waveguide and coax systems dry. These dehydrators may also be used to supply short term protection for larger systems; during power interruptions, maintenance, storage, or transportation.

An RCD passive dehydrator contains a drying agent sealed in a pressure tight container. A 1/8" NPT pressure fitting is provided for connecting to the system to be protected. Gas diffusion insures that the desiccant is exposed to any water vapor present in the system. Unlike mechanically pressurized systems, an RCD passive dehydrator works best when the waveguide or coax system is tightly sealed.

## SELF-PUMPING PASSIVE DEHYDRATORS

Containing just one moving part, an RCD self-pumping passive dehydrator uses variations in ambient temperature and barometric pressure to pressurize the waveguide or coax. When the pressure inside the waveguide is less than atmospheric, a sensitive check valve in bottom of the bottle opens. This allows ambient air to enter the waveguide or coax after it has passed through and been dried by the desiccant. When the internal pressure exceeds atmospheric, the check valve closes thus holding the system at a positive pressure.

This feature improves performance in two ways. First, it increases drying efficiency by keeping the system at a positive pressure. Thus dry air generally leaks out rather than moist air leaking in. Second, this feature insures controlled dry air circulation in the waveguide or coax. When compared to a passive dehydrator that relies upon gas diffusion, circulation dramatically improves response to environmental changes.

## DRYING AGENTS

The RCD-1, RCD-2, RCD-3, and RCD-4 passive dehydrators employ an amorphous alumino-silica gel desiccant. This drying agent starts out orange and fades to a translucent, dull amber. Orange silica gel is acceptable for use in the European Union.

The RCD-5 and RCD-6 passive dehydrators employ a molecular sieve desiccant. This drying agent includes blue moisture indicating pellets that start out blue and fades to a translucent pink. The blue moisture indicating pellets are 10% of the molecular sieve desiccant by volume.

When saturated, either drying agent can be replaced or regenerated by heating in a conventional oven. Depending upon the system volume and tightness, along with environmental conditions at the site, the desiccant lasts 12 to 18 months, or more, before needing regeneration or replacement.

A broken feed window at the antenna can expose waveguide or coax to rain or melted snow. Under these conditions, the negligible solubility of the desiccant blend used in an RCD passive dehydrator will neither contribute to the problems caused by water immersion nor leave a corrosive residue. After immersion, RCD passive dehydrator performance can be restored by replacing the desiccant, though it is typically more cost effective to replace the entire unit.

A copy of the Material Safety Data Sheet for each drying agent is available from Customer Service.

## APPLICATIONS

The RCD passive dehydrator applications include both primary and secondary dehydration. Primary applications include waveguide/coax drying where the RCD passive dehydrator is the only dehydrator. These include systems smaller than one cubic foot. This volume limit can be increased, to an extent, by using multiple units.

An RCD passive dehydrator does not require electric power. Thus, it is ideally suited to applications with limited power budgets such as solar powered stations.

Secondary applications include backing up mechanical pressurization systems. For example, an RCD passive dehydrator could eliminate the need to operate the pressurization system from expensive and limited emergency power (i.e., UPS). It would also insure dry waveguide or coax in the event of pressurization equipment failure.

An RCD passive dehydrator may be used to protect against moisture condensation during shipping and storage of microwave equipment.

For indoor applications, the RCD-3 and the RCD-4 use a clear bottle for easier viewing of the drying agent. All other models use a translucent bottle that offers more protection from light and temperature.

## INSTALLATION

### Materials Supplied

Before disposing of the packing materials, verify the inclusion of an RCD passive dehydrator, this manual, and the items show below:

Qty.	Part Number	Description
1	17967	1" x 3 1/2" LOOP Mounting Patch
1	17968	1" x 3 1/2" HOOK Mounting Patch
1	17984	Hook and Loop Cinch Strap
1	14508	Cable Tie Mount

Immediately notify Customer Service of any discrepancy or shipping damage.

## LOCATION

The RCD passive dehydrator can be located indoors or outdoors. If used outdoors, choose a location protected from exposure to rain, snow, etc. Mount the unit upright or horizontally. Choose an accessible location since the desiccant requires periodic replacement or regeneration.

## MOUNTING

The Accessory Kit contains components for mounting the RCD in two different ways. Use the hook and loop Cinch Strap to secure the RCD bottle in mobile installations such as satellite news gathering trucks, or when extra mechanical security is desired (Figure 1, page 2). Use the convenient hook and loop mounting patches in fixed installations where vibration and shock are not present (Figure 2, page 2).

Connecting the RCD passive dehydrator to customer equipment requires customer supplied components. These include fittings for connecting tubing between the 1/8" male NPT pipe fitting and the waveguide pressurization flange, the tubing, and an appropriate sealant for all fitting threads.

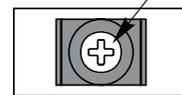
Remove the red protective cap(s) from the unit to expose the threaded portion of the pressure fitting and the inlet to the check valve. Only the Self-Pumping units will include a check valve. The customer equipment attaches to the fitting attached to the cap end of the RCD bottle. On Self-Pumping units, do not attach to the plastic fitting installed in the bottom of the bottle. The check valve must be unobstructed for proper operation.

Getting the best performance and longest desiccant life requires an airtight system. Take extra care to make certain that the system is leak free or at least as tight as is practical.

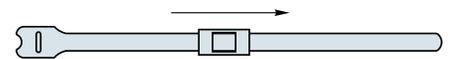
**FIGURE 1.** Use the Cable Tie Mount and the hook and loop Cinch Strap to secure the RCD bottle in mobile installations such as satellite news gathering trucks, or when extra mechanical security is desired.

**Step 1.** Attach Cable Tie Mount into bulkhead.

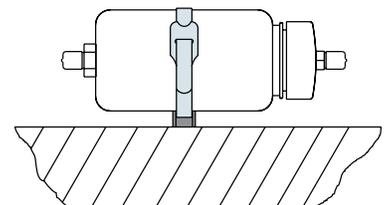
#10 screw (customer supplied)



**Step 2.** Slide hook & loop cinch strap through connector.



**Step 3.** Position bottle as shown; tighten cinch strap around bottle.

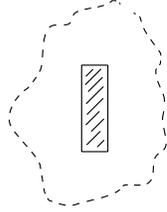


**FIGURE 2.**

Use the convenient hook and loop mounting patches in fixed installations where vibration and shock are not present. Only Self-Pumping units will include a check valve.

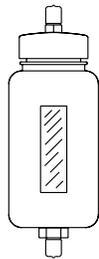
**Step 1.**

Remove plastic backing from Loop Mounting Patch. Position loop patch where bottle is to be mounted and stick to bulkhead.



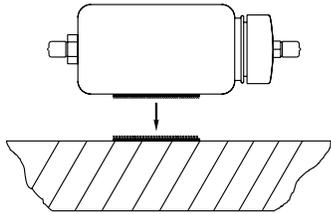
**Step 2.**

Remove plastic backing from Hook Mounting Patch. Position hook patch as shown and stick to bottle.



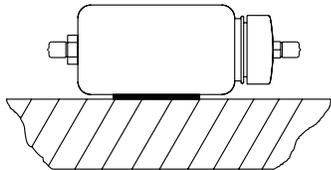
**Step 3.**

Align Hook Patch on bottle to Loop Patch on bulkhead. To mount, press patches together firmly.



**Step 4.**

Remove protective cap(s) from either end of the bottle and connect to customer equipment.



## MAINTENANCE

### Monthly Inspection

The drying agent typically requires replacement or regeneration every 12 to 18 months. The exact interval depends upon system tightness and environmental conditions. A leaky system in a damp climate will shorten the replacement interval. Monthly visual inspection is recommended.

A feed window failure can fill the waveguide system with water thus immersing the desiccant. If this happens, replace the drying agent or the entire unit.

### How to Regenerate the Desiccant

Detach the tubing from the cap-end of the RCD bottle. Avoid disturbing the pressure adapter fitting attached to the cap.

Remove the RCD bottle by releasing the cinch strap or separating it from the bulkhead's mounting patch.

Remove the cap from the top of the RCD bottle. This may require substantial force. Use slip-joint pliers if necessary. Use needle nose pliers to remove the gray filter from the inside top of the bottle. If necessary, dry the filter. Save the filter for reinstallation.

Empty the drying agent into a clean baking dish.

If it has been immersed, the RCD passive dehydrator requires additional maintenance or replacement. Using needle nose pliers, remove the gray filter in the bottom of the bottle. Wash both the filter and the bottle, including the check valve, in deionized or distilled water. Thoroughly dry both the filter and the bottle. Reinstall the filter in the bottom of the bottle. It is often more economical to simply replace the RCD passive dehydrator if it has been immersed.

Heat the desiccant in a conventional oven at 320°F (160°C) for two (2) hours, stirring every 30 minutes, or until silica gel particles turn orange or blue [DO NOT use a microwave oven]. Cool to room temperature. Immediately thereafter, pour the desiccant into the RCD bottle. Reinstall the gray filter in the top of the bottle.

Reinstall the original cap while taking care not to disturb the adapter fitting. Use slip-joint pliers to securely tighten the cap since leakage will reduce the desiccant service life. Reinstall the RCD passive dehydrator and reconnect the tubing to the waveguide or coax system.

## REPLACEABLE PARTS

Since the RCD passive dehydrator is a drying agent in a special purpose bottle, consider complete replacement with a new RCD passive dehydrator, part number 17957 (Accessory Kit, RCD).

## ACCESSORIES

Accessory Kit, RCD part number 17957

## CONTACTING CUSTOMER SERVICE

Office Hours 8:00 AM to 5:00 PM ET

**Email:** [info@networketi.com](mailto:info@networketi.com)

**Web:** [networketi.com](http://networketi.com)

## LIMITED WARRANTY

ETI's two year limited warranty covering defects in workmanship and materials applies. Contact Customer Service for complete warranty information.

The ETI logo, We Manage Heat, APS and CIT are registered trademarks of ETI. EUR is a trademark of ETI. Copyright © 2008 ETI. All rights reserved.

## DISCLAIMER

ETI makes no representations or warranties, either expressed or implied, with respect to the contents of this publication or the products that it describes, and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose. ETI reserves the right to revise this publication, and to make changes and improvements to the products described in this publication, without the obligation of ETI to notify any person or organization of such revisions, changes or improvements.