

Desiccant Pack Installation Instructions



Why Install a Desiccant Pack into the Allegro?

The Allegro is waterproof when the battery and PC card doors are properly closed. However, the unit is built with a micro-pore filter in the wall of the Allegro, which allows for a balance of atmospheric pressure between the inside and outside of the case. This can allow the passage of atmospheric gases, comprised mostly of nitrogen and oxygen as well as the minor elements such as carbon dioxide and water vapor.

In higher humidity environments, water vapor may collect inside the case to a level sufficient to cause condensation inside the case when the Allegro is subjected to colder conditions. This condition appears as fog inside of the touchscreen covering the display. Placing a desiccant pack in the Allegro case can reduce the possibility of condensation on the inside of the touchscreen.

Included Items

When you order a desiccant pack, you receive two desiccant packs in a small, airtight, resealable plastic bag. Each desiccant pack is shipped with two small pieces of Velcro. The first piece is attached to the desiccant pack, and the other is attached to the first piece of Velcro.



Items Needed

- Desiccant pack with two pieces of Velcro attached (included)
- Small flathead screwdriver



Installation Instructions

To install a desiccant pack in the Allegro, complete the following steps:

1. Using a small flathead screwdriver (or coin), turn the screws on the PC Card door $\frac{1}{4}$ turn to the left to unlock the latches.



2. Remove the adhesive backing from the piece of Velcro attached to the Velcro that is attached to the desiccant pack.



3. Attach the desiccant pack with the attached Velcro pieces so it is about $\frac{1}{4}$ inch below the upper gasket rim and centered between the PC card door holder tabs. Make sure the lower edge of the desiccant pack sits directly above the PC Card holder tabs.

Make sure the transparent window is facing out so the color indicator is visible.



Note: If a piece of Velcro is already attached to the inside of the Allegro's PC card door, remove the piece on the new pack that has the removable adhesive cover and throw it away. Attach the desiccant pack to the piece of Velcro that is already attached to your Allegro.

4. Close the door slowly while inspecting the newly installed desiccant pack. Make sure the edges of the packet are far enough away from the gasket so that it is not pinched by the PC Card door when it is closed.

Caution: If the edge of the packet is pinched between the gasket and seal rim, the door may not fully seal, thus compromising the waterproof integrity of the Allegro.

5. Using a small flathead screwdriver (or coin), turn the screws a $\frac{1}{4}$ turn to the right to lock the latches on the PC Card door.
6. Replace the desiccant pack periodically as needed.

Indicating Silica Gel

We use an indicating silica gel that has been washed with a concentration of cobalt chloride (a heavy metal salt). The cobalt chloride is a deep blue color when it is dry and turns from blue to purple to pink as it becomes saturated with moisture. Typically, the color changes as the desiccant goes past 8% moisture levels (by weight) and indicates it is time to replace the desiccant.

If the indicator is pink, heat the bag according to the following instructions:

Dry the bag in a cool, convection, circulating, forced air oven set at 245 degrees F. Be sure the bag has sufficient airflow around it.

Warning: Do not exceed 245 degrees. Failure to do so could melt the desiccant.

Leave the bag in the oven for 24 hours. Once done, seal the bag in the included air-tight bag or a small air-tight glass jar for cooling.

For detailed instructions, please see the white paper *Mil-Spec Desiccant Regeneration* on our website.

If the color changes from pink back to blue, it is reusable. If the color does not change, contact Juniper Systems for more information.

Color indicator



Storage

You must store the unused desiccant packs in the sealable plastic bag in which the packs were shipped until you are ready to use them. Storing the desiccant packs in containers that are not air tight shortens the useful life of the desiccant pack.

Ordering Information

Replacement packs of two desiccant packs (part number 20391) can be purchased from Juniper Systems, Inc. at js@junipersys.com or by calling (435) 753-1881.



a Campbell Scientific Company

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Part # 20393-02
Released May 2011

Mobile Field Computers and Mobile GIS/GPS

HarvestMaster™ Brand Data Collection Tools for Agriculture



MIL-SPEC DESICCANT REGENERATION

Regeneration of Tyvek desiccant bags or brown paper bags can be accomplished by the following method:

- Arrange the bags on a wire tray in a single layer to allow for adequate airflow around the bags during the drying process. The oven's inside temperature should be room or ambient (77° F – 85° F.) A CONVECTION, CIRCULATING, FORCED AIR TYPE OVEN IS RECOMMENDED FOR THIS REGENERATION PROCESS. SEAL FAILURES MAY OCCUR IF ANY OTHER TYPE OF HEATING UNIT OR APPLIANCE IS USED.
- When placed in a forced air, circulating air, or convection oven, allow a minimum of 1.5 to 2.0 inches of air space between the top of the bags and the next metal tray above the bags. If placed in a radiating exposed infrared element type oven, shield the bags from direct exposure to the heating element, giving the closest bags a minimum of 16 inches clearance from the heat shield. Excessive surface film temperature due to infrared radiation will cause the Tyvek material to melt and/or the seals to fail.
- Seal failure may also occur if the temperature is allowed to increase rapidly. This is due to the fact that the water vapor is not given sufficient time to diffuse through the Tyvek material, thus creating internal pressure within the bag, resulting in a seal rupture. Temperature should not increase faster than 0.25° to 0.50° F per minute.
- Set the temperature of the oven to 245° F, and allow the bags of desiccant to reach equilibrium temperature. WARNING: Tyvek has a melt temperature of 250° F – 260° F. (NON MIL-D-3464E, activation or reactivation of both silica gel and Bentonite clay can be achieved at temperatures of 220° F).
- Desiccant bags should be allowed to remain in the oven at the assigned temperature for up to 24 hours. At the end of the time period, the bags should be immediately removed and placed in a desiccator jar or dry (0% relative humidity) airtight container for cooling. ([LPTG01 foil ziplock bags are ideal](#)) If this procedure is not followed precisely, any water vapor driven off during reactivation may be re-absorbed during cooling and/or handling.
- After the bags of desiccant have been allowed to cool in an airtight desiccator, they may be removed and placed in either an appropriate type polyliner tightly sealed to prevent moisture absorption, or a container that prevents moisture from coming into contact with the regenerated desiccant.