



ULTRA Touch Panel Cleaning Procedure

Description

This document describes the cleaning procedure performed on every ULTRA touch panel. It describes the chemicals and wiping method and includes a short discussion on what types of chemicals are safe or unsafe to use under non-coated glass and for specially coated glass.

Materials

- Windex/window cleaner
- 99% Isopropyl alcohol
- Acetone (optional)
- Microfiber cloths

Standard Cleaning

Cleaning a standard ULTRA touch sensor surface is a simple process. The step involves cleaning off any smudges, streaks, fingerprints or other marks that would impair optical clarity and cosmetic appearance of the touch screen. The sensor is placed on a soft surface in order to protect the back of the sensor from scratches, and is lightly sprayed with 99% isopropyl alcohol. The alcohol is used first in order to aid in cleaning off any marks which are tougher than simple smudges or streaks, such as permanent marker or particularly caked on dirt. The alcohol is allowed to sit for 5-10 seconds, after which the sensor is wiped with a dry, clean soft cloth until the surface is dry. Acetone may be used if the marks cannot be removed with alcohol.

Next the sensor is sprayed with a window cleaner and is also allowed to sit for 5-10 seconds, and is then again wiped with another soft, clean cloth. The window cleaner removes any remaining streaks caused by the alcohol or fingerprints as a result of handling the sensor. The same cloth used with the alcohol may be used with the window cleaner and vice versa. When it is too wet to continue using, it is hung up to dry and a new cloth is switched in.

The process is repeated for the back of the sensor. When finished the sensor is held up to a fluorescent light source and inspected for any marks that were missed and are cleaned with alcohol and/or window cleaner as required. Finally, a dry cloth is passed on the front and back surfaces to collect any lingering dust or lint remaining on the surface as a result of the cleaning process until it is clear.

Chemical Resistance Info

Because the cleaning surfaces are mostly glass, any chemical that does not degrade the optical or physical performance or structure of borosilicate glass may be used as cleaning agents. The strongest chemical used by A D Metro is trichloroethylene, but is rarely required for cleaning. The only chemical that should **never** be used is hydrosulfuric acid.



Special Coating Cleaning Solutions and Procedures

Anti-Glare

Cleaning method is the same as for non-coated armor glass. In addition, the following solutions have been tested on anti-glare coated microglass and have met ASTM F 1598-95 standard:

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|--------------------------|-----------------------------|
| - Toluene | - Formula 409 |
| - Methyl Ethyl Ketone | - D10 Concentrated Cleaner |
| - Vinegar | - Phosphoric Acid 85% |
| - Ammonia Based Cleaners | - Saturated NaCl Solution |
| - Methanol | - Sunscreen |
| - Ethyl Acetate | - Works Toilet Bowl Cleaner |
| - Brake Fluid | - Lysol |
| - Hand Sanitizer | - Dish Soap |

Anti-glare coated glass is also resistant to bleach, but it should be avoided, as it may sometimes leave a permanent stain. The solutions listed above should not be sprayed onto the borders of the touch panel where the lamination glue is located, as the glue has not been tested with them.

Anti-Reflective

Anti reflective coated glass, while still durable, are more sensitive to damage than non-coated glass. Dirty cloths should **never** be used. In the event that tough dirt or debris is lodged in the cloth and gets rubbed on the coating surface via contact with the cloth, it may cause scratches or other damage to appear. For normal cleaning, dusting with a dry, soft, clean cloth is sufficient, but for harder contaminants, nothing stronger than standard soap/detergent and water or various window cleaners should be used.

For durability info, refer to Appendix A.



Appendix A – Anti-Reflective Coating Durability Specification

Adhesion

The coating shall show no evidence of damage after "snap tape" test by which Scotch brand #610 cellulose tape is pressed firmly against the coated surface and removed quickly with a snap of the wrist as referenced in paragraph 4.5.12 of MIL-C-675C.

Abrasion Resistance

The coating shall be subjected to a 20 rub eraser abrasion resistance test and meet the requirements referenced in paragraph 4.5.10 of MIL-C-675C for sleeking at the area of abrasion.

Humidity Resistance

The coating shall be subjected to continuous exposure for 24 hours in an atmosphere of 120 degrees F. \pm 4 degrees and 98% \pm 2% relative humidity without evidence of deterioration as referenced in paragraph 4.5.8 of MIL-C-675C.

Solubility

The coating shall show no evidence of deterioration after being immersed for 24 hours in water containing six ounces of Sodium Chloride per gallon as referenced in paragraph 4.5.7 of MIL-C-675C.

Temperature Resistance

The coating shall show no evidence of deterioration after being exposed to an ambient temperature of -65 degrees F. and +160 degrees F. for a period of four hours at each specified temperature as referenced in paragraph 3.11.3 of MIL-C-14806A.