

Cleaning outer cover/casing

Clean the outer casing/casing in a gentle and ESD-safe way. If possible should sensitive parts (circuit board, sensors, etc.) are removed before cleaning begins.

- Brush off the enclosure with an ESD brush. Have an ESD-safe vacuum cleaner nearby that sucks up the dirt. Alternatively, filtered compressed air can be used, then clean outdoors or with an ESD-safe vacuum cleaner nearby.

- In the first place, only plain water should be used as a cleaning agent on a moistened ESD-safe cloth or lint-free paper. Avoid dripping water on the enclosure.

- If the unit is heavily soiled, rubbing alcohol (T-red) or similar volatile agents can be used as a cleaning agent. Do not overdose.

- o Only use approved cleaning agents!

- o Acetone must not be used as it dissolves plastic.

- o Avoid spraying on cleaning agents, as this will result in a mist like you do not know where it ends up, and that it is negative for the working environment. Breathe in cleanser is not useful, which then requires a face mask.

Dismantling

Does the unit need to be disassembled in order to troubleshoot the unit or access circuit boards inside the device? If disassembly is required, it must be investigated whether there may be dangerous components or voltages in the device.

Begin by carefully disassembling the device in an ESD-safe manner. Preferably photograph it that may be dangerous or look damaged or strange. Observe and research about it:

- Are there large capacitors that could be dangerous?
- Are there batteries on the card? (Leakage? Picking off?)
- Is there damaged cabling?
- Are there damaged connectors?
- Is there anything else inside the unit that looks damaged/strange?

Remember to keep screws, washers, and nuts in order as you disassemble so you know what order each step was done. Feel free to document with photographs every step you take.

Cleaning of circuit boards and cabling

Since cleaning the circuit board can damage the circuit board or the components, cleaning must take place carefully and only with agents approved for cleaning circuit boards. Primarily should the circuit board be brushed off with an ESD-safe brush.

- Is the circuit board dirty?
 - o For easier cleaning, the circuit board can be brushed off with an ESD brush. Have a ESD-safe vacuum cleaner nearby that sucks up the dirt.
 - o For more stubborn dirt, clean the circuit board with deionized water, rubbing alcohol or isopropanol.
 - § Never use Acetone or similar as it dissolves plastic.
 - § Older circuit boards may have poor two-component varnish that does not withstand isopropanol. If you are unsure, test on a corner or other part of the circuit board that is free of components and wiring paths.
 - o When cleaning with isopropanol, dip the entire card in an alcohol wipe, if possible, place. Otherwise, use lint-free paper or moistened ESD-safe cloth and wipe the circuit board carefully.
- Is the wiring dirty?
 - o Avoid cleaning the connector pins or ferrules in the harness if they are obvious are not dirty, damaged or bent.
 - o Clean it with deionized water, rubbing alcohol or isopropanol.

Pictures and comments

Photographs, images and notes are posted in the project folder on the server.

Equipment and materials

The equipment and materials needed for cleaning are:

- ESD brush/brushes
- ESD-safe cloth
- ESD-safe vacuum cleaner
- Lint-free paper
- Deionized water, alcohol and/or isopropanol
- Alcohol wash
- Compressed air with air filter
- Face mask