

Custom PCAP Touch Panel Integration Guide

Mechanical, electrical and validation notes for OEM engineers

Revision: Draft v0.1 | Application: Mechanical and electrical integration for OEM custom PCAP touch panel projects

Integration sequence

1. Confirm mechanical envelope: outer dimension, active area, viewing area, cover glass and FPC exit.
2. Select controller and interface: USB HID, I2C, RS232 or custom pinout.
3. Review grounding: host board, metal bezel, shield layer, cable and chassis relationship.
4. Build prototype and tune firmware for water, glove, EMI and operating environment.
5. Validate with the final LCD, enclosure, cable length, power source and software.

Mechanical integration

- Avoid sharp FPC bends and unplanned compression under the enclosure.
- Keep cover glass support flat and stable to reduce stress and false touch risk.
- For wet or outdoor use, coordinate gasket, bezel pressure, coating and drainage path early.
- For optical bonding, confirm LCD size, backlight heat, black border and cover lens flatness.

Electrical and firmware notes

- USB HID is usually easiest for Windows, Linux and many embedded systems.
- I2C is compact for embedded boards but needs careful pinout, interrupt and reset planning.
- Long cable length, noisy power, floating ground and nearby motors can reduce touch stability.
- Firmware tuning should be done with the final cover glass thickness and enclosure.

Validation checklist

- Basic touch: 1 to 10 points, edge response, palm rejection and wake-up behavior.
- Environment: glove, wet touch, cleaning liquid, condensation and operating temperature.
- EMC/ESD: touch stability near motors, relays, chargers, power supplies and metal frames.
- Mechanical: FPC strain, connector retention, cover glass stress and mounting repeatability.

Common issues and fixes

False touch in water | Review controller tuning, drainage, coating and grounding.

Edge dead zone | Check active area, bezel overlap, sensor margin and firmware settings.

Intermittent touch | Check cable routing, connector locking, power noise and shield connection.

Poor glove touch | Confirm glove material, cover glass thickness and controller sensitivity.

Notes

Document status: Draft for RFQ screening. Final specifications depend on drawing review, LCD availability, controller selection and validation tests.

Contact: admin@evergloryltd.com | EverGlory Photoelectric Co., Ltd.