



ARCHITECTURE AND DESIGN
INPUTS

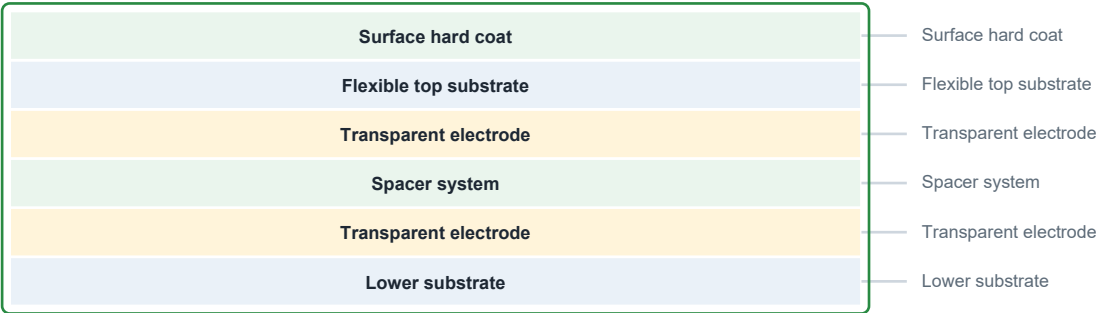
Resistive Touch Panel Design Guide

Design inputs and system-integration guidance for custom resistive touch-panel assemblies.

Design note. This guide uses a supplier-neutral construction model. Final architecture is selected with the controller and enclosure through DFM.

Architecture Flexible top circuit, spacer system, lower circuit and tail	Core inputs Active area, viewing area, outline, tail, interface and environment
Integration Bezel, gasket, display support, controller and calibration	Release gate Panel DFM plus validation in the final enclosure

1. Typical Layer Stack



Input group	Information to provide
Application	User input method, environment, actuation frequency and expected life
Optical	Viewing area, transparency, haze, surface finish and display stack
Mechanical	Outline, thickness, active area, tail exit, mounting and bezel geometry
Electrical	Panel architecture, tail pinout, controller and grounding strategy
Surface	Glare, hard coat, cleaning, chemical and scratch requirements
Quality	Linearity, insulation, appearance, environmental and life test plan



OPERATION AND ELECTRICAL
INTERFACE

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2. System Definition

Topic	Required definition
Coordinate sensing	The controller applies excitation and reads the touch voltage for each axis.
Panel architecture	Choose the circuit arrangement with the controller and life requirements.
Tail pinout	Define electrode names, contact order, mating connector and insertion orientation.
Calibration	Define factory or system calibration, edge compensation and service procedure.
Grounding	Coordinate display, controller, enclosure and cable grounding for the full system.

3. Electrical Acceptance

Characteristic	Project requirement
Linearity	Define calculation, test grid, excluded edge region and acceptance limit.
Insulation	Specify test voltage, dwell, environment and acceptable leakage.
Contact behavior	Define activation method, controller threshold and debounce assumptions.
Tail	Specify conductor finish, reinforcement, bend path and connector engagement.
Noise immunity	Validate with the actual controller, display, power supply and enclosure.

Panel performance is evaluated with the intended controller and grounding arrangement. A standalone panel result does not prove system behavior.

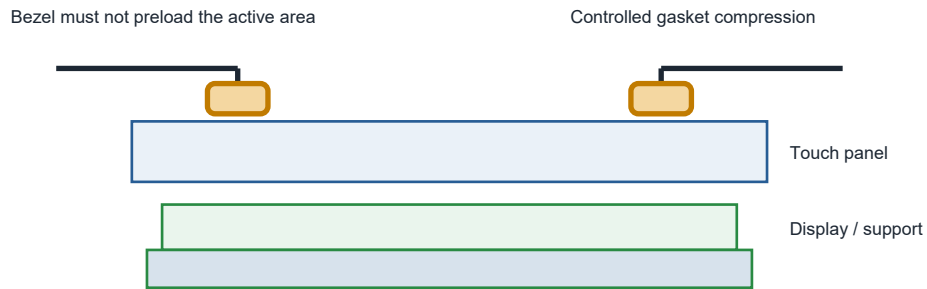


MECHANICAL AND OPTICAL
INTEGRATION

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Touch-panel integration concept



Mechanical topic	Integration requirement
Active area	Keep the bezel, gasket and adhesive load outside the defined active region.
Viewing area	Coordinate the touch-panel border with the display aperture and cosmetic mask.
Support	Support the display and panel stack without point loading or twisting the substrates.
Gasket	Define material, location, compression range and environmental sealing function.
Tail path	Provide bend relief, insertion access and protection from sharp housing edges.
Assembly	Define cleaning, alignment, fastening sequence and allowable rework.

4. Optical and Cosmetic Definition

Optical topic	Required definition
Stack gap	Define the air gap or bonding layer between touch panel and display.
Surface finish	Select clear, anti-glare or other finish from readability and use conditions.
Printed border	Provide color, opacity, viewing opening and alignment to the active area.
Appearance	Define allowable particles, scratches, Newton rings, distortion and edge effects.
Inspection	Set lighting, background, viewing angle, distance and powered display state.



**VALIDATION AND RELEASE
CHECKLIST**

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Validation group	Evidence to define
Dimensional	Outline, active/viewing areas, thickness, tail and datums
Electrical	Pinout, insulation, electrode continuity, linearity and controller operation
Mechanical	Bezel clearance, gasket compression, tail routing and assembly stress
Optical	Transparency, haze, border opacity, display readability and cosmetics
Environmental	Temperature, humidity, cycling, cleaning and application-specific exposure
Durability	Actuation profile, surface wear, tail flex and connector handling

5. System Release Check

- The touch panel, display, bezel, gasket and controller revisions are recorded together.
- The active area is not preloaded or cropped by the housing.
- Tail routing and connector access are proven in the intended assembly sequence.
- Calibration and edge behavior are approved on the production controller.
- Cosmetic limits use agreed zones and viewing conditions.
- Environmental and durability samples use production-intent materials and assembly.

6. Controlled Approval Package

Retain the approved panel drawing, tail pinout, controller definition, calibration method, enclosure drawing, cosmetic standard and validation reports as one project record.

Release gate: Approve touch accuracy, edge behavior, appearance and durability in the final display and enclosure assembly.