



PRODUCT DEFINITION

Membrane Switch Product Specifications

Public specification framework for defining custom membrane-switch construction, interfaces and validation requirements.

Specification note: Membrane switches are custom assemblies. Numeric limits are established for the selected construction and recorded in the approved project specification.

Product scope Custom membrane switches and graphic-overlay assemblies	Construction Tactile, non-tactile, rigid-backed and integrated options
Control document Approved project drawing and product specification	Capability basis Materials, geometry and tests confirmed through project DFM

1. Construction Elements

Element	Specification content
Graphic overlay	Material, finish, artwork, windows, embossing and printed colors
Circuit	Printed flexible circuit, routing, contact geometry and tail definition
Tactile element	Metal dome, formed polymer response or non-tactile contact
Spacer and adhesive	Layer openings, venting, bonding surfaces and assembly stack
Backer	Optional metal, PCB or other approved rigid support
Termination	Flexible tail, connector, pins or wire harness by project design
Lighting	Optional LED or light-guide integration with defined optical requirements

2. Controlled Requirement Groups

Group	Required definition
Mechanical	Outline, thickness, key centers, travel, force target and mounting
Electrical	Circuit, pinout, contact load, resistance definitions and insulation
Visual	Artwork, colors, windows, texture, illumination and cosmetic zones
Environmental	Operating profile, storage, humidity, chemicals and sealing context
Reliability	Actuation profile, conditioning, sample construction and failure criteria
Quality	Inspection method, acceptance evidence, traceability and change control



**PROJECT SPECIFICATION
CHECKLIST**

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Electrical topic	Definition required
Circuit function	Provide schematic, matrix or netlist and identify common conductors.
Rated load	State voltage, current, switching type and whether limits apply simultaneously.
Resistance	Define measurement points for contact, trace and total loop resistance.
Insulation	Define test voltage, dwell, environment and minimum acceptance requirement.
Termination	Provide connector, pin numbering, mating orientation and cable constraints.

3. Mechanical and Visual Inputs

Topic	Definition required
Actuation	Define tactile or non-tactile response, target force, travel and return.
Dimensions	Identify critical dimensions, datums, tolerances and mating features.
Mounting	Define adhesive surface, backer, fasteners, gasket and assembly sequence.
Sealing	Describe the complete enclosure and edge-seal concept, not the switch alone.
Appearance	Define viewing condition, cosmetic zones and approved color references.

4. Validation Evidence

Validation group	Evidence
Electrical	Continuity, resistance, insulation and functional operation
Mechanical	Actuation, travel, fit, tail routing and assembly stress
Environmental	Project-specific temperature, humidity, chemical or sealing exposure
Durability	Defined actuation profile with load, rate and failure criteria
Appearance	Artwork, registration, color, windows, lighting and surface quality

5. Publication and Release Rules

- Published values must identify whether they are minimum, maximum, typical or project-specific.
- No generic value overrides the approved project drawing or product specification.
- Environmental and life performance applies only to the validated construction.
- Material or process changes follow the agreed project change-control requirement.

The released part number is governed by one revision-controlled drawing, specification and approved validation record.