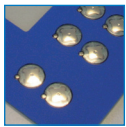


Membrane Switch Solutions

Custom Membrane Switch solutions are the critical interface between your device, machine, equipment and the operator. One that defines the operator's experience and hence goes far beyond a basic specification, unit price or lead-time. More so, one that adds critical value to your product and process. Danielson is your European partner in this with its extensive innovative solution portfolio, long standing experience, local manufacturing and local sales engineers as an extension of your production and development team. We look forward to your inquiries about our Membrane Switch solutions.



Solutions



SWITCH SOLUTIONS

tactile - non-tactile - micro switches - digital switches (touch)



MMI OVERLAYS

anti-bacterial - rubber keypads - polyurethane domed keys



SHIELDING

environmental - emi/rfi - esd



ILLUMINATION

el - led - through key



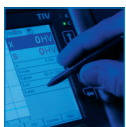
HOUSING

metal - stainless steel - plastic - aluminium



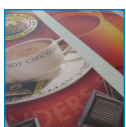
TOUCH SCREENS

resistive - analog in 4/5/8 wire - matrix - membrane integrated touch - custom/standard solution



DISPLAY ENHANCEMENT

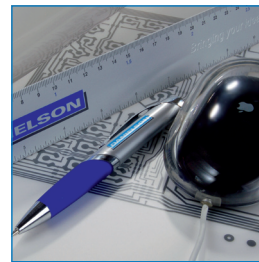
antiglare - heated - closed front



GRAPHIC OVERLAYS

full colour - half tone - varnish

Technology



**ARTWORK DESIGN
CAD ENGINEERING
PROTOTYPING**



**SCREEN PRINTING
EMBOSSING
LASER CUTTING
DIE CUTTING
SURFACE MOUNTING
CLEAN ROOM
ASSEMBLY**



**QUALITY CONTROL
LOGISTICS**



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Membrane Switch Solutions Technical Specifications

Membrane Switch design options and Features

Overlay and Graphics	
Polyester (normal & UV resistant)	Self-textured, gloss, semi gloss and dull
Embossing	Rim, frame, deboss, pillow and dome
Locator plate	Machined finger locator plate laminated onto graphic overlay
Printing	
Selective surface lacquers	Texture, gloss and semi-gloss
Image graphics	Matched to specific requirements
Display filter windows	Translucent and transparent windows to accommodate LED, LCD, VFD, CRT, etc., displays, dead front and secret until lit features
Electromagnetic Shielding	A variety of integrated shielding solutions are available from Danielson to meet EMC and ESD requirements
Other features	
Integrated components	Surface mount LEDs, resistors, diodes, rotary switches
Electroluminescence (EL)	Provides cool, even illumination to displays, graphics and switches used in low ambient light conditions
Support panels	Aluminium, steel, plastic, fibreboard
Insert legend	Insert labeling provides information flexibility and a degree of product standardisation
Chemical resistance	A combination of materials and coatings can provide enhanced resistance to a variety of chemicals, solvents and cleaning fluids
Environmental sealing	Sealing can be improved subject to design considerations
Turnkey solutions	If the value of your product can be enhanced by incorporating additional electronics or more than one technology, for example a backlit membrane panel with touch screen, then Danielson has the experience and expertise to bring your ideas to life

Danielson can incorporate a wide range of features into a Membrane Switch panel.

Electrical properties

	Non-tactile	Metal dome	Polydome	Comments
Contact bounce time	<3ms	<10ms	<20ms	ASTM F1661-96
Typical closed switch loop resistance	≤ 100Ω	≤ 100Ω	≤ 100Ω	ASTM F1680-02
Closed switch loop resistance	≤ 5kΩ	≤ 5kΩ	≤ 5kΩ	ASTM F1680-02
Insulation resistance				
Without crossover	≥ 10MΩ	≥ 10MΩ	≥ 10MΩ	ASTM F1689-02
With crossover	≥ 0,1MΩ	≥ 0,1MΩ	≥ 0,1MΩ	ASTM F1996-01
Operating (switched) voltage	Min. 0.5V Max. 30V	Min. 0.5V Max. 30V	Min. 0.5V Max. 30V	
Operating (switched) current	≤ 50mA	≤ 50mA	≤ 50mA	
Operating (switched) power	Max. 1W	Max. 1W	Max. 1W	Resistive circuit

Environmental properties

	Non-tactile	Metal dome	Cold-formed polydome-overlay and/or circuit layer	Comments
Operating temperature	-20°C to +70°C	-20°C to +70°C	0°C to +40°C	No dew condensation allowed at 50%RH
Storage temperature	-40°C to +80°C	-40°C to +80°C	-30°C to +50°C	No dew condensation allowed at 50%RH
Operating temperature	-	-	Heat-formed - circuit layer only 0°C to +60°C	No dew condensation allowed at 50%RH
Storage temperature	-	-	-30°C to +70°C	No dew condensation allowed at 50%RH
Other properties				
Operating humidity	≤ 90%RH	≤ 90%RH	Polydome ≤ 90%RH	No dew condensation allowed at +40°C
Storage humidity	≤ 90%RH	≤ 90%RH	≤ 90%RH	No dew condensation allowed at +40°C
UV resistance	Normal Polyester is not resistant - UV resistant velvet texture material is available on request			
Shielding & IP protection				
Environmental	Sealing to IP67 can be achieved subject to design considerations			
EMI / RFI		Design specific	Refer to Danielson's test results	
ESD		Design specific		

Specifications are subject to change without notice. Other specifications upon request.