



Standard Terminology for Membrane Switches¹

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1. Scope

1.1 This terminology defines terms that are commonly used in the membrane switch industry.

1.2 These definitions are not mutually exclusive.

2. Terminology

actuation force—the maximum force measured prior to or including point at which contact closure is achieved on a membrane switch.

circuit resistance—electrical resistance as measured between two test points whose internal contacts, when held closed, complete a circuit.

conductor resistance—the measured electrical resistance through a circuit loop between two test points.

contact bounce—intermittent contact opening and contact closure that may occur after switch operation.

contact closure—the event at which a specified resistance is achieved on a membrane switch.

contact force—the force at contact closure.

current carrying capacity—the maximum level of electrical current that a circuit can conduct without sustaining damage.

dielectric withstand voltage—the maximum voltage a dielectric can withstand in a membrane switch without a visual change from a voltage discharge or specified change of insulation resistance, or both.

duty cycle—the ratio of switch closed time to total cycle time.

graphic layer—optional decorated layer of a membrane switch. See Fig. 1.

insulation resistance—the electrical resistance between two

isolated test points on a membrane switch.

membrane layer—a flexible dynamic layer which carries one or both switch poles the deflection of which is used to short both poles together. The membrane layer is a required component of a membrane switch. See Fig. 1.

membrane switch—a momentary switching device in which at least one contact is on, or made of, a flexible substrate.

open circuit resistance—minimum allowable resistance as measured between two test points that, if lower then, will indicate an electrical short.

rigid layer—provides mechanical support for the membrane switch. See Fig. 1.

silver migration—a process by which silver, when in contact with insulating materials under electrical potential, is removed ionically from its original location, and is redeposit as a metal (silver dendrite) at some other location.

spacer layer—a material (usually dielectric) sometimes used to maintain a separation between the membrane layer and static layer of a membrane switch.

specified circuit resistance—maximum allowable circuit resistance as measured between two terminations whose internal contacts, when held closed, complete a circuit.

static layer—a mechanically supported layer which carries one or both poles of the switch or is used to short both poles together. The static layer is a required component of a membrane switch. See Fig. 1.

tactile layer—optional feature incorporated into a membrane switch to alter the tactile response. See Fig. 1.

tactile response—a physical sensation caused by a sudden collapse and/or snapback of a membrane switch.

test points—two preselected conductive points in a circuit loop, possibly including a switch.

travel—measured distance of movement when a membrane switch is depressed.

¹ This terminology is under the jurisdiction of ASTM Committee F01 on Materials for Specific Applications and is the direct responsibility of Subcommittee F01.18 on Membrane Switches.

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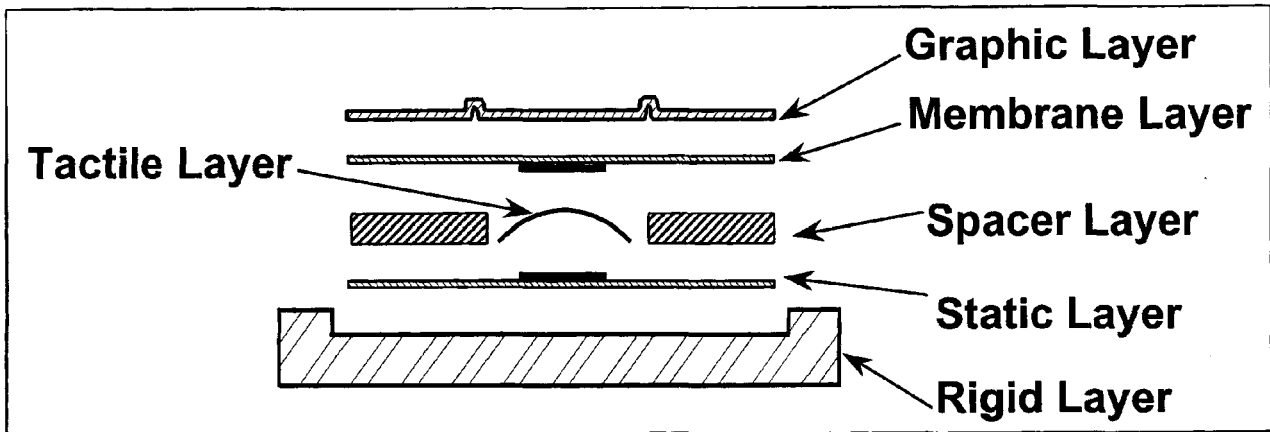


FIG. 1 Six Basic Layers of a Membrane Switch (Layers are shown as separate components but some can be combined into one layer. For example a graphic layer can also be the membrane layer. A second example is the tactile layer can also be the membrane layer.)

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