Elastomer Button & Keypad

Products & Solutions

ADVANCED INPUT SYSTEMS

The Design and Manufacturing of AIS Elastomer Button & Keypads have been refined for decades to yield high-performing products that service a broad range of challenging applications. Design flexibility offers limitless configurations for **both tactile and non-tactile buttons, backlighting and diffusion, texture, and decoration**. AIS button design expertise can balance the performance variables of force, travel, tactile ratio, and button-life to achieve product requirements.

New proprietary processes in graphics printing and bonding enable break-through performance in multi-color graphics and differentiated backlighting solutions, with exceptional durability at much lower costs. AIS silicone rubber keypads can be co-molded with plastic enclosures to form a protective seal from harsh environments.

Contact AIS today to learn how our expertise and experience can unleash the potential of your product's Human Machine eXperience (HMX).

Technology Description

Typical Switch Architectures

Carbon Pill: employs a molded conductive carbon contact to provide a simple, low cost, reliable switch

Elastomer over Dome: employs a non-tactile elastomer over a tactile dome to achieve high tactile performance with short travel

Elastomer & Hinged Key: employs a rigid hinged key to distribute the applied force for excellent off-center push performance for large shapes

Button Performance Glossary

Force: user force required to press and close the switch (ex: 350 grams)

Travel: the stroke length/distance the button travels to close the switch

Tactile Ratio: the 'feedback' or 'snap' ratio of peak force and return force

Button Life: the reliability of a switch to failure (ex: 1 million cycles)

Applications

- Medical Control Panels
- Hand-Held Products
- Remote Controls
- Ruggedized Products
- Industrial Interfaces
- Infection Control Surfaces
- Shock/Drop Protection
- Military Specifications
- Blind Touch Operation

Features and Benefits

- Cost effective
- Unique Backlighting and Light Diffusion
- Tactile & Non-Tactile
- Reliable & Durable
- Customizable Button Size and Shapes
- Diverse Decorative Colors & Finishes
- Sealable for Harsh Environments
- Abrasion Resistant
- Chemical Resistant

SPECIFICATIONS

ELECTRICAL

Contact resistance	<100Ω with silver shorting pads <200Ω to 300Ω with carbon pills
Insulation resistance @ 500VDC	>100 MΩ
Contact rating	30 mA @ 12V DC 0.5 sec
Contact bounce, milliseconds	<12 ms

MECHANICAL

Actuation Force	20-350 grams
Key Stroke	0.25 - 5.0mm
Operating Life	1,000,000 actuations (typical)
Durometer	40-80 +/-5 shore A

ENVIRONMENTAL

Operating Temperature	-30°C to +185°C
Storage Temperature	-42°C to +250°C
Flammability	94HB

DURABILITY

Dielectric strength	> 1 min. @ 500V RMS
Tensile Strength (kg/cm^2)	55-75 depending on durometer
Insulation Breakdown	26kV/mm

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