

**Products**

Joysticks:

- Mini Force Joysticks
- Fingertip Displacement Joysticks (Pot Output)
- Fingertip Displacement Joysticks (Hall Effect)

Grips:

- Aluminum Std ambidextrous
- Plastic Std ambidextrous
- Custom Ergonomic Shapes

Hand Controls:

- Single Grip
- Dual Grip
- Pot Output
- Hall Effect Output

Trackballs:

- Desktop
- Sub Panel
- MAGTRAK Waterproof

Encoders:

- Sealed Optical Encoders
- Low Friction

Systems:

- Custom Panels
- Bullnose Panels
- Multiple Input Devices
- Cockpit Systems
- Ground Stations
- Fire Control Panels

## Model 469C Miniature Force Joysticks

The Model 469C Series offers a two axis, force operated, precision fingertip or thumb joystick control which converts the input force of the operator to analog output voltages proportional to applied force and input voltage. This technology was first patented and introduced by Ultra MSI (U.S. Patent No. 3454920). These devices are utilized in hundreds of applications in a variety of industries and are in extensive world-wide use today.

The Model 469CB (bushing mount) and 469CL (grip mount) precision joystick controls are available as stand alone devices for customer integration, or installed in Ultra MSI Control Grips for a thumb-operated grip control or integrated into custom input systems and panels per customer requirements.

Their small size and weight make them ideal solutions where precision control is required but larger devices are not practical.



**Model 469C**

### Applications:

- Computer Graphics/Cursor Control
- Mapping, X-Y Inspection Table
- Robotics, Medical Surgery/Cursor
- Security Cameras, Video Cameras
- Vehicle Control, Flight Control
- Electric Wheelchair
- Hoists, Cranes, Industrial Processing

### Technical Info:

- Diameter: .655" Below Panel
- Depth: 1.21" Below Panel
- Overall Length: 1.66" Without Knob
- Input Voltage: 12 VDC Max. Excit. Voltage
- Resolution: Infinite, No Dead Zone
- Linearity: +-2% of Full Scale Output
- Sensitivity: .0375V/lb/V
- Operating Force: 0 to 3.1 lbs (Mechanical Stop).
- Null Hysteresis: 0.5% of Full Scale Max
- Operating Temp: -40C to +72C
- Storage Temp: -52C to +85C
- Vibration: 10g's Peak, 55 to 2000 Hz
- Reliability: 100,000 Hrs MTBF Continuous Use
- Shock: 50g's, 11mSec, Half Sine

### Features:

- A high integrity, precision control device
- Force operated – easy and natural to operate
- High resolution linear output
- Extremely small size/low weight
- Continuous resolution
- No moving parts – high reliability
- Performs without loss of precision throughout operational life

### Options:

- Knobs – A variety of knobs are available including Concave Thumb, Coolie Hat Thumb and Fingertip Handles
- Bushing or Grip Style Mounting
- Boot Seals
- No voltage fold back
- Single Axis
- Dual Redundant
- High Force

**Consult Factory for more options**

