



ELECTRONICS

An Affiliate of ELECTRO SWITCH



SECURITY & DEFENSE

- Unmanned Vehicle Command
- Camera Pan-Tilt-Zoom
- Armored Vehicle Applications

MARINE

- Navigation Mapping
- Radar Systems
- Vessel Directional Control



MEDICAL | CLEANROOM

- Cardiovascular Guide Wire Control
- Diagnostic Imaging Equipment
- Science Research Laboratories

AEROSPACE

- Helicopter Navigational Plotting
- Aircraft Maintenance
- Flight Simulator Systems



INDUSTRIAL

- Food Processing Plants
- Natural Resources Processing
- Metrology/Semiconductor



- Open Frame [KP40U4](#) and [KP60U6-BR](#) USB Keypads

## OEM 4-button & 6-button miniature USB Keypads

The implementation of the F13-F24 (USB HEX Codes 68 to 73) Keys offers the Software Application Developer a quick and easy solution for software application enhancement in tough environments. The keypads operate in harsh conditions over a broad temperature range.

- NEMA 4 (IP66) watertight sealing O-Ring molded in Elastomer
- Operating Temperature -40°C to +80°C (-40°F to +176°F)
- Dimensions 1.93 x 1.83 x 0.43" (46.4 x 49.0 x 10.9mm)
- Molded rubber keys with 2mm travel have excellent tactile feedback
- Hard carbon pills are molded in the elastomer for key contacts
- Thick layer of hard gold form the PCB for key contacts
- Switches rated up to 10M activations



- Open Frame [KI88U1](#) and [KI98U1](#) Industrial Keyboards

## OEM Industrial Keyboards

These full size keyboards are designed as a two PCB solution (Matrix and Controller) to ensure years of reliable operation. A stiffener bracket is secured to the Matrix PCB for strength and endurance. A special flexible polyurethane coating is applied to rubber elastomer.

- NEMA 4 (IP66) sealing O-Ring molded in Elastomer
- KI8800 Dimensions 11.75 x 6.85 x 0.95" (298.4 x 173.9 x 24.1mm)
- KI9800 Dimensions 15.45 x 7.12 x 1.05" (392.4 x 180.4 x 26.6mm)
- Integrated elastomer and PCB simplifies installation and assures a proper seal, no glue or sealers required
- Molded carbon pills, hard gold contacts, 2mm travel keys, provide superior reliability & tactile feedback

## OEM Backlit/Illuminated Industrial Keyboards

These compact keyboards are single PCB solutions with time tested reinforcements to ensure years of reliable operation. The integrated OrbitalMouse® has eight levels of cursor speed control. Red LEDs are typical, as Green LEDs are used in very low level lighting situations.

- KI6800 Dimensions 8.00 x 4.89 x 0.57" (203.2 x 124.1 x 14.4mm)
- KIO6800 Dimensions 8.00 x 4.46 x 0.51" (203.2 x 113.2 x 12.9mm)
- KIO7800 Dimensions 11.63 x 4.86 x 0.73" (295.4 x 219.7 x 18.5mm)
- Ten levels of brightness, powered directly from the keyboard port
- Optional French AZERTY; German QWERTZ; Spanish QWERTY
- Compatible with Standard USB Keyboard & Composite Drivers
- Optional USB Cable in 1.0 ft. to 9.5 ft. lengths



- Open Frame [KIO68U4-BR](#), [KIO78U4-BR](#) Illuminated Keyboards

## Plug-n-Play Keyboards | Rack Mount Keyboards

Enclosed in painted aluminum or stainless steel, sealed to withstand water spray, harsh oils, chemicals, and solvents. Keyboards with trackballs can tolerate water droplets and light dirt debris. These rugged keyboards are designed for years of uninterrupted service.

- NEMA 4, 4X (IP66) and NEMA 12 (IP54) Trackball
- KIT2700 Dimensions 16.38 x 9.00 x 1.72" (416.0 x 228.6 x 43.6mm)
- Keyboard only or with built-in highest reliability, low-profile pointers
- Threaded stainless steel inserts on bottom plate for mounting
- Rack Mount 1U has an ergonomic folding door used as a hand rest
- 1.5" Dia. Trackball Mouse, is the largest ball in a 1U Rack solution.
- Standard 9.5 ft. USB Cable, optional 9.5 ft. PS/2 cable



- Plug-n-Play [KIT24U1](#) Industrial Keyboard | [KIT34U1](#) Rack Mount



• Open Frame [N5](#), [N2](#), [N24](#), [N54](#) Industrial Analog Joysticks



• Open Frame [N3](#), [N33](#), [N34](#), [N63](#) Industrial Analog Joysticks



• Open Frame [N82](#), [N84](#), Industrial Analog Joysticks



• [N2W Medical Lightstick®](#), [N24 Industrial Lightstick®](#)

## Non-Pushbutton F1000-Nx Inductive Joysticks

CTI's inductive joystick with only three moving components guarantees the highest reliability over any other technology. A non-contacting sensor design ensures the output signal will not drift or degrade.

- NEMA 4 (IP66) watertight sealing rating
- Operating Temperature -40°C to +80°C (-40°F to +176°F)
- Rated up to 10M operations
- Low DC Voltage operation with minimal current
- Single or Dual Axes (Simultaneous or Non-Simultaneous movement)
- Smallest footprint 1.65 x 1.65" (41.9 x 41.9mm)
- Shallow depth below panel 0.87" (22.1mm)
- Molded-in threaded brass inserts for secure mounting

## Pushbutton F1000-Nx Inductive Joysticks

Designed into the F-Series joysticks is a fully sealed, high life, momentary pushbutton switch that provides the operator with excellent tactile feedback. The pushbutton outputs are a logic level or dry contact.

- Molded O-Ring in the Flange of the Boot/Bellow
- Gold switch contact in Pushbutton is rated for up to 1M actuations
- Optional Optical Neutral "Safety" Switch is an independent separate signal used as a fault indicator.
- Smooth, proportional voltage output signal
- Standard high UV resistant Neoprene Boot
- Optional Conductive Silicone Boot for EMI/RFI mitigation
- Optional Adaptor Plate integrates PCB to bottom of joystick

## Three Axes F1800-Nx Inductive Joysticks

Typically, N82 is for indoor and N84 is for outdoor usage. The X and Y axes use inductive sensors; the Z axis uses a rotating potentiometer. Molded into the body are four brass threaded inserts for securely mounting into a metal enclosure. These inserts ensure a watertight seal and eliminate breakage concerns during the operational life.

- N82 is NEMA 12 (IP54) and N84 is NEMA 4 (IP66) rated
- Internal sensor design guarantees long term availability
- Excellent tactile feedback with high precision control
- Inductive, non-contacting sensors for the X and Y axes and a very high life 5KΩ potentiometer for the third axis
- Optional Digital Interfaces such as USB, PS/2, RS-232, RS-422, RS-485

## The LightStick® L1000-Nx Optical Joysticks

Patented in U.S.A. and Europe, the optical sensor technology is non-contacting, ensuring long life. It offers high resolution, true orthogonal outputs, and minimal susceptibility to EMI/RFI. Only five moving parts ensure durability, reliability, and performance.

- NEMA 4 (IP66) watertight sealing rating
- Rated up to 10M operations
- Designed for Severe EMI/RFI environments
- Smooth, proportional voltage output signal
- Small footprint 1.94 x 1.94" (49.2 x 49.2mm)
- Shallow depth below panel 0.90" (22.8mm)
- Optional Pushbutton models





- Open Frame [OM2200](#), [OM20U2](#), [OM2000](#), Button Style Mouse



- Open Frame [T1XXX](#), [T7XXX](#), [T6XXX](#) Trackball Sub-Assemblies



- [T40U3](#), [T10U3](#), [T70U3](#) Panel Mount Trackballs



- [M90U9-N34](#), [M20U9-N3](#), [H20U1-N24](#) Mouse Pointing Devices

## OrbitalMouse® OEM Pointing Devices

The patented low-profile button style pointer is an alternative to capacitive sensitive touchscreen, trackpad, and pressure-based (force) technologies. Operating over a broad temperature range it doesn't degrade, drift, or breakdown. Its design meets an OEM's small footprint needs in the industrial environment.

- NEMA 4 (IP66) watertight sealing O-Ring molded in Elastomer
- Operating Temperature -40°C to +80°C (-40°F to +176°F).
- OM2200 Dimensions 2.69 x 2.56 x 0.56" (68.3 x 65.0 x 14.2mm)
- OM20U2 Dimensions 1.93 x 1.83 x 0.43" (46.4 x 49.0 x 10.9mm)
- Red or Green LED's, powered directly from the keyboard port
- Optional USB Cable in 1.0 ft. to 9.5 ft. lengths

## OEM Trackball Sub-Assemblies

For aerospace, medical, military, and marine applications requiring exact precision control, high reliability, and long term performance.

- NEMA 12 (IP54) Rating
- Standard Operating Temperature -25°C to +80°C (-14°F to +176°F)
- PTFE sealing ring in Aluminum Collar ensures smooth ball rotation
- Aerospace shielded bearings (ABEC 7)
- MIL-HDBK-217F rating: MTBF > 100,000 hours
- CTI's Optical Encoders compensate for LED aging
- Maintenance-free, hardened stainless steel shafts
- Standard Quadrature Output Signals via 10-Pin IDC Connector
- Optional Digital Signals such as USB, PS/2, RS-232, RS-485

## Panel Mount Trackballs

CTI's panel mount trackballs have sealed full travel switches and a neoprene gasket which seals to prevent leakage under panel.

- Aluminum collar provides shock protection
- Blue aluminum cover mitigates EMI/RFI signals
- Precision ground, specially formulated mineral filled ball meets an exacting tolerance, over a broad operating temperature range.
- Optional Vibration Dampening Material for mobile applications
- Metal encoder discs produce very high counts per revolution
- Optional Operating Temperature -40°C to +80°C (-40°F to +176°F).
- Standard Digital Interfaces: USB, PS/2
- Optional Digital Interfaces: RS-232, RS-422, RS-485

## Industrial Mouse™ - Joystick Cursor Controller

CTI's rugged Industrial Mouse™ devices are easy to use even while wearing gloves. Offered in a Plug-n-Play stainless steel enclosure, a Panel Mount stainless steel bezel, or open frame OEM sub-assembly.

- NEMA 4, 4X (IP66) watertight sealing rated
- Reliable, Durable, providing years of maintenance free operation
- Inductive joystick technology guarantees no drift
- Sealed switches with hard gold and carbon pill contacts
- Easy to Point and Click with the Pushbutton models
- M90U9-N34 has threaded insert on bottom plate for mounting
- M20U9-N3 has an optional Holder/Cradle for storage/protection
- Optionally Configured as USB Game Control Device



- Open Frame [N2W](#), [N24W](#), [N3W](#), [N33W](#) with Adaptor Plate

## F1000-NxW Medical/Cleanroom Analog Joysticks

Using the most reliable inductive sensor technology, the joysticks are then Parylene "C" coated to provide the toughest molecular barrier protection. Its ability to combat germs and tolerate repeated cleanings makes it the first choice of medical device manufacturers.

- NEMA 4 (IP66) watertight sealing rating
- Operating Temperature -40°C to +80°C (-40°F to +176°F)
- Rated up to 10M cycles
- Smooth, proportional voltage output signal
- Smallest footprint 1.65 x 1.65" (41.9 x 41.9mm)
- Shallow depth below panel 1.40" (35.5mm)
- Optional Boot Conductive Underlayment for EMI/RFI mitigation

## OEM Medical/Cleanroom Keyboards

The compact and medium sized keyboards are single PCB solutions for medical and scientific laboratory device manufacturers. Antimicrobial and Antiviral protection is extended by using Parylene "C" coating.

- NEMA 4 (IP66) sealing O-Ring molded in the Elastomer
- KI68U6 Dimensions 8.00 x 4.89 x 0.57" (203.2 x 124.1 x 14.48mm)
- KIO78U6 Dimensions 11.63 x 4.86 x 0.73" (295.4 x 219.7 x 18.5mm)
- Integrated elastomer and PCB simplifies installation and assures a proper seal, no glue or sealers required
- OrbitalMouse® has eight levels of cursor speed control
- Compatible with Standard USB Keyboard and Composite Drivers
- Optional USB Cable in 1.0 ft. to 9.5 ft. lengths



- Open Frame [KI68U6](#) and [KIO78U6](#) Medical Keyboards

## Medical/Cleanroom Mouse Pointing Devices

CTI's hygienic Medical Mouse devices are very easy to disinfect. These cursor controllers are available in a Plug-n-Play or in an open frame sub-assembly for cleanroom device manufactures.

- NEMA 4, 4X (IP66) watertight sealing rating
- Reliable, Durable, with guaranteed performance
- Inductive joystick technology ensures no cursor drift
- Sealed switches with hard gold and carbon pill contacts
- Easy to Point and Click with the Pushbutton models
- Parylene "C" coated elastomer, knob, and strain relief
- M20U6-N3W has a Holder/Cradle for convenient storage
- Optionally Configured as USB Game Control Device

## Plug-n-Play Medical/Cleanroom Keyboards

Perfect solution for medical and scientific laboratories, these keyboards are enclosed in stainless steel or painted aluminum, able to tolerate repeated usage of antibacterial, antiviral cleaning solvents. Also, available with trackball for precise cursor control.

- NEMA 4, 4X (IP66) or NEMA 12 (IP54) trackball
- Operating Temperature -40°C to +80°C (-40°F to +176°F)
- KIF66U6-N2W Dimensions 11.27 x 6.13 x 2.71" (286.2 x 155.6 x 68.8mm)
- KIT60U6 Dimensions 11.27 x 6.13 x 1.57" (286.2 x 155.6 x 39.8mm)
- Threaded stainless steel inserts in bottom plate for mounting
- Parylene "C" coated elastomer, knob, and strain relief
- Standard 9.5 ft. White USB Cable



- [M20U6-N3W](#) and Open Frame [F60U6-N2W](#) Medical Mouse



- Plug-n-Play [KIF66U6-N2W](#), [KIT60U6](#) Medical Keyboard with Mouse



• [M74U4BR-N33-M4151](#) (Industrial Mouse w/ 8 Function Keys)



• [M76U8-N34-T6102](#) (USB Flightstick w/ OrbitalMouse®)



• [M7626-N84-13xxx](#) (RS-485 Serial Joystick w/12 Switch Keys)

### M7xUx-N33 uCTI-Pod™ Universal Joystick Controller

This hardened aluminum enclosure is designed for rugged outdoor mobile applications. It can be configured as a joystick motion controller, mouse cursor pointer, and keyboard/keypad.

- NEMA 4X (IP66) watertight sealing rating
- Temperature Range -40°C to +80°C (-40°F to +176°F)
- MIL-HDBK-217F rated: MTBF > 100,000 hours
- Standard Digital Interfaces: USB, RS-422, RS-485
- Standard NEMA 4 (IP66) watertight 10 Foot Disconnect USB Cable
- Optional MIL Connector D38999/20WB5SN
- Closed Foam Cushion Padding reduces hand fatigue
- Optional backlighting with Red or Green LED's

### M7xUx-N34 uCTI-Pod™ Universal Joystick Controller

This ultimate operator control module has the greatest benefit for US military, homeland security, port authority, and other public sectors.

- There are hundreds of possible functional configurations
- MIL-STD-810G rated against fine debris particles or humidity, fungus, and salt spray
- Compatible with Standard USB Keyboard, Mouse, Composite, and Game Control Device Drivers
- RS-422/RS-485 Byte Stream Protocols available at set Baud Rates
- Syn-Proof™ coated elastomers protect against oils and chemicals
- Light control switch provides 10 levels of illumination
- Optional OrbitalMouse®, low profile button style, no drift pointer

### M7xUx-N84 uCTI-Pod™ Universal Joystick Controller

Applications include Unmanned Vehicle Systems such as UAV, UGV, USV, UUV Control, and Video Surveillance Systems such as Pan-Tilt-Zoom (PTZ) Camera System Control or Closed Circuit Television (CCTV).

- Silicone Conductive Boot for EMI/RFI protection
- Aluminum Enclosure protects against shock, vibration, and EMI/RFI
- Four threaded stainless steel inserts on bottom plate for mounting
- Carrying Handle doubles as a Crash Bar
- Conformal Coated PCBs protect against condensation or humidity
- Standard F13-F24 Function Keys (in Four or Six buttons)
- Standard S1-S12 Switches (in Four or Six buttons)
- Optional Hat-Switch Control for a four way or eight way "point of view"



An Affiliate of **ELECTRO SWITCH**

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#### ABOUT CTI ELECTRONICS CORPORATION

At its beginning, CTI pioneered modular design and manufacturing of industrial HMI products that in combination with developing and patenting the required core sensor technologies, provided reliable, durable solutions targeted at high performance customer needs.

Thus CTI's customers benefit not only from one of the broadest, standard offerings of rugged, time-proven HMI product lines, but can also depend on long term availability for their critical applications. These products include some of the most durable joysticks available and a family of Industrial Mouse™ non-drifting pointers based on these joysticks. CTI's trackballs are designed for precision pointing in applications such as aerospace and medical imaging.

Additionally OEM designers, by taking advantage of CTI's modular sensor technology and breadth of products, can quickly obtain specially modified or fully customized products for their most demanding HMI applications. CTI is an ISO 9001 certified manufacturer in the U.S.A.