



when reliability is critical™

How to Select an Industrial Joystick

CTI Electronics Corporation manufactures an industrial-grade inductive joystick with 1K or 10K ohms of resistance which electrically simulates a potentiometer joystick. Because of its design and components, the CTI NEMA 4 (IP66) industrial joysticks are the most reliable pointing device available on the market today. But, an industrial joystick may not be the correct device for every application. It is CTI's goal to navigate you through the selection process in determining the best human machine interface device for *your* application.

The selection of the appropriate device requires a fundamental understanding of the application, where it will be used, and how it will be used by the operator. There are other factors which are also involved such as budget constraints, time constraints, time-to-market issues, etc. which will also affect the choice of an appropriate device.

Select Function: [Industrial Mouse™](#) [Motion Control](#)

What is the application for which the joystick will be used? Please describe.

- Example: • The joystick will be used to control a pan/tilt camera system.
- Example: • The joystick will be used as an [Industrial Mouse™](#) in a manufacturing facility.

Select Environment: Indoor Outdoor

[Understanding NEMA and IP Ratings](#)

Describe the environment where the joystick be used.

- Example: • Wet, extremely cold, and/or containing harsh chemicals/oils, heavy dust, dirt, or sand.
- Example: • Climate controlled room with biohazardous waste materials.

How will the operator use the joystick? Please describe.

- Example: • The operator will use the joystick as a mouse to point to various objects on the screen; it will be used extensively throughout the day.
- Example: • The operator will use the joystick to control a remote robotic vehicle in harsh terrain.

Select a joystick knob: [N2](#) [N3](#) [N5](#) [N24](#) [N33](#) [N34](#) [N54](#) [N63](#) [N82](#) [N84](#)

The selection of the knob is determined by the physical and functionality requirements of the application and the usage by the operator. It can be somewhat subjective at times.

Does your application require a [switchpad](#)? No 1-Button 3-Buttons 6-Buttons Other (Specify):

Specify the desired number of Axes of movement: Single Axis Dual Axes Three (3) Axes

All of CTI's joysticks are available with Spring Return to Center.

Select:	Digital Output	OR	Analog Input/Output
	USB		+12V / +3V to +9V
	PS/2		+5V / +1.25V to +3.75V
	Serial		±5V / ±5V
	Quadrature		±12V / ±10V
			+5V / +0.5V to +4.5V
			+5V / 0V to +5V
			±10V / ±10V
	Other		Other
	Please explain digital interface:		Please explain Input and Output voltages:

Specify an Operating Temperature Range: Standard: 0°C to +80°C Optional: -40°C to +80°C

Does your application require Conformal Coating on PCB? Yes No

Conformal Coating on the PCB protects electrical components from moisture and prolongs life. Conformal Coating is used when the environment may contain moisture caused by either condensation from high humidity or rapid changes in temperature.

Does your application require a Deadband? Yes No

Typically most Analog applications will require the use of a Deadband, whereas digital applications require a joystick without a Deadband. When a joystick has a Deadband of 2 degrees about center the output voltage will remain constant with a slight movement off center. When a joystick is without a Deadband, the output voltage will change with the slightest movement off center.

Does your application require an Optical Neutral "Safety" Switch? Yes No

CTI's patented Optical Neutral Switch is a "circuit safety or operations normal" signal, it is a Redundant Circuit Open/Short Indicator, for your application. This optical indicator is a totally separate, independent and complementary signal from the Vx, Vy, and Vz output signals, which indicates that the joystick is either on or off center. Note: This feature is only available with the +5V, ±5V models.

Example: • +5V Input, 0V output on center, +5V output off center

Does your application require a Conductive Boot & Ferrite Bead? Yes No

Conductive Boots & Ferrite Beads are used in applications where the joystick is exposed to high attenuation levels of Electro-Magnetic waves or Radio Frequency signals (i.e. hand-held wireless controls). The addition of a Conductive Boot & Ferrite Bead reduces interference or feedback within the electrical circuitry.

Specify Spring Type: Standard Spring Maximum Compression Spring

A Maximum Compression Spring is used when the operator is wearing heavy gloves or when the application requires a greater stiffness in the movement of the joystick.

Specify Mounting Thread Type: 4-40 Threads 3mm Threads

Please describe any other requirements of the joystick:

Contact Information:

First: _____ Last: _____
 Company: _____
 Address 1: _____
 Address 2: _____
 City: _____ State/Province: _____ Country: _____ ZIP: _____
 Phone: _____ Fax: _____ E-mail: _____