

M7000-Nx Series

uHMI-Pod™ UNIVERSAL INDUSTRIAL JOYSTICK CONTROLLER

M7000-Nx SERIES OPERATOR CONTROL MODULE



• Pictured with N84 Joystick, Switchpad (S1-S6) and Hat Switch

CTI's uHMI-Pod™ or Universal Industrial Joystick Controller is a hardened, lightweight, mobile operator control module that has versatile functions such as a joystick motion controller, mouse cursor pointer, and keyboard/keypad. The joystick is configured as a motion controller with absolute positioning. The patented button style Orbital Mouse® technology will function as a relative mouse pointing device. A set of four button and six button sub-assemblies provide keyboard or keypad F-Key functions or momentary switch selection functionality. Combinations of keyboard functions and switching control can be tailored to meet specific application requirements. And for those applications requiring a rapid change of viewpoint, a four way "point of view" or "hat-switch" control is available.

The NEMA 4X (IP 66) sealed aluminum enclosure has been ruggedized to withstand heavy handedness and/or rough usage under extreme environmental conditions. Its robust design is intended for critical applications requiring high durability, and high reliability while operating under extreme temperatures, exposure to harsh climate and/or solid, liquid contaminants. It's well protected against high vibration, EMI/RFI signals, and a dual purpose carry handle/crash bar for in-field mobile situations. Or, the bottom plate is securable to a surface via stainless steel threaded inserts with an alternative cable bar protector. In mobile applications, the design allows for quick connect/disconnect of cabling, efficient storage of the uHMI-Pod™ and shielded cable. In low-level lighting situations, an intuitive light control switch provides 10 levels of illumination.

The uHMI-Pod™ is the operator control module for military, commercial, public sector applications like 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) Control. Customizable, the uHMI-Pod™ offers a single or dual port USB or a single port RS-422/RS-485 communication interface. Modular sub-assemblies offer mouse, switch, or keypad functionality and illumination by light emitting diodes (LEDs). And, two axes or three axes joysticks for motion control via a USB HID Compliant Game Control signal or a RS-422/RS-485 serial signal.

M7000-Nx STANDARD FEATURES

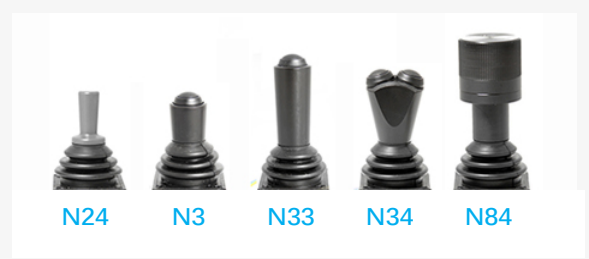
- NEMA 4X(IP66) Aluminum Enclosure with 4 mounting inserts on bottom plate
- Operating Temperature -40°C to 80°C (-40°F to 176°F)
- Inductive Joysticks and Sub-Assemblies with high reliability and durability (MTBF 100,000+ hours, 10,000,000+ deflections)
- Molded rubber elastomer keys rated for 10 million cycles
- Silicone Conductive Boot (EMI/RFI Protection)
- Joystick movement is Spring Return to Center
- Conformal Coating of PCB protects against condensation or humidity
- Syn-Proof™ coated elastomer protects against harsh oils and chemicals
- USB Output Signal has 8 bits of precision
- 10 foot shielded USB Disconnect Cable with Standard USB "A" Plug
- RS-232/RS-485 Output Signal has 10 bits of precision
- Closed Foam Cushion Padding for reduced hand fatigue
- Crash Bar/Carrying Handle for N33, N34, and N84 models
- Cable Bar (protects cable and connector) for N24 and N3 models

M7000-Nx MAJOR CONFIGURABLE FUNCTIONAL DEVICES

| |
|---|
| USB Game Controller (Joystick, Hat Switch, plus Switch buttons) |
| USB Composite Device (Joystick plus Keyboard Function Keys) |
| USB Composite Device (Joystick, Keyboard Function Keys, plus Orbital Mouse®) |
| Combination USB Game Controller and USB Composite Device (Keyboard Function Keys, Orbital Mouse®) |
| RS-422 / RS-485 Motion Controller (Joystick, Hat Switch, plus Switch Buttons) |
| RS-422 / RS-485 Motion Controller (Joystick, Keyboard Function Keys, Orbital Mouse®) |
| Combination RS-422 / RS-485 Motion Controller, Orbital Mouse®, and Switch Buttons |

*For complete ordering information please contact CTI Electronics Corporation

M7000-Nx JOYSTICK KNOB OPTIONS



M7000-Nx KEYPAD SWITCHPAD SUB-ASSEMBLY OPTIONS



M7000-Nx TECHNICAL DRAWINGS

- 761834 [uHMI-Pod™ M7000-N33 Technical Drawing \(USB HID\)](#)
- 761835 [uHMI-Pod™ M7000-N34 Technical Drawing \(USB HID\)](#)
- 761836 [uHMI-Pod™ M7000-N84 Technical Drawing \(USB HID\)](#)
- 761837 [uHMI-Pod™ M7000-N84 Technical Drawing \(RS422/RS485\)](#)
- [uHMI-Pod™ M7000-N24 Technical Drawing \(USB HID\)](#)
- [uHMI-Pod™ M7000-N3 Technical Drawing \(USB HID\)](#)



M7000-Nx Series

uHMI-Pod™ UNIVERSAL INDUSTRIAL JOYSTICK CONTROLLER

uHMI-Pod™ SPECIFICATION

Preliminary Data

| | | | | |
|---------------------|---|------------------------|------------------------|------------------------|
| Overall Dimensions | Crash Bar | Width: 6.75" (17.15cm) | Height: 6.3" (16.00cm) | Depth: 8.5" (21.60cm) |
| | Cable Bar | Width: 6.75" (17.15cm) | Height: 2.6" (6.60cm) | Depth: 10.5" (26.68cm) |
| Enclosure | Iridited Aluminum with Black Powder Coating | | | |
| Operating Systems | Microsoft Windows® Operating System (Windows XP, Windows 7, Windows 8) | | | |
| | Mac OS X® or Linux OS requires compliant USB Device Class Definition for Human Interface Devices 1.11 | | | |
| Mounting Capability | 4 Threaded Stainless Steel Inserts on bottom plate | | | |
| Closed Foam Padding | Top and bottom cushioning for operator comfort | | | |

uHMI-Pod™ ELECTRICAL SPECIFICATION

Preliminary Data

| | | | |
|-------------------|--|------------------------|---|
| MTBF | Greater than 100,000 hours | | |
| USB Interfaces | USB Single Port | USB Dual Port | |
| Serial Interfaces | RS422 ANSI TIA/EIA-422 | RS485 ANSI TIA/EIA-485 | RS232 ANSI TIA/EIA-232 (Special Order) |
| Output Precision | USB 8-Bits | | Serial 10-Bits |
| Cabling | USB 10ft Disconnectable Cable (S7S009-P0743) | | Serial use mating plug to MIL Socket D38999/20WB5SN |
| Illumination | USB (ON/OFF with 10 levels) | Serial (Programmable) | Colors Red, Green, Other (Special Order) |

uHMI-Pod™ MECHANICAL SPECIFICATION

Preliminary Data

| | | | |
|------------------------------|--|--------------------------|--|
| N84 Specifications | Knob Type Non-Pushbutton | Axes Three Axes | Sensor Technology Inductive / Potentiometer |
| N34 Specifications | Knob Type Dual Pushbutton | Axes Dual or Three Axes | Sensor Technology Inductive / Momentary Switch |
| N3 / N33 Specifications | Knob Type Pushbutton | Axes Single or Dual Axes | Sensor Technology Inductive / Momentary Switch |
| N24 Specifications | Knob Type Non-Pushbutton | Axes Single or Dual Axes | Sensor Technology Inductive |
| Life Expectancy | X, Y, & Z Axes 10,000,000 random deflections | | Momentary Switch 1,000,000+ cycles |
| Joystick Movement | X & Y Axes Spring Return to Center | | Z Axis N84 (Spring Return to Center) |
| N3, N33, N34 Swtich Movement | Normally Open Momentary Swtich | | |
| Joystick Operational Force | X & Y Breakout Force 140g (typical) | | X & Y Full Scale Force 235g (typical) |
| Shock | Peak Value 30g (typical) | Peak Duration 11ms | Waveform Half Sine |
| Vibration | Frequency / Displacement | 5-25 Hz / 0.1" (typical) | 25-55 Hz / 0.03" (typical) |

uHMI-Pod™ ENVIRONMENTAL SPECIFICATION

| | | |
|-----------------------|---|----------------------------------|
| Operating Temperature | -40° to 80° C / -40° to 176° F | |
| Storage Temperature | -40° to 80° C / -40° to 176° F | |
| Relative Humidity | 100% condensing | |
| Sealing Rating | NEMA 4X (IP66) | |
| Elastomer Protection | SynProof™ Coating resists most oils and harsh chemicals | Parylene Coating (Special Order) |

CONFORMANCE / CERTIFICATIONS / COMPLIANCE

subject to manufacturing options applied

| | | |
|-------------------------|--|---|
| U.S.A. Standards | U.S. FCC 47 CFR 15 Class A & B | RF Emissions Compliant 8Kv (Contact), 15Kv (Air) |
| | MIL-STD-461F | Radiated Emissions and Susceptibility Conformance |
| | MIL-STD-810G | Protection against humidity, fungus, and salt spray Conformance |
| | MIL-STD-901D | Protection against shock Conformance |
| | MIL-STD-167-1 | Protection against vibration Conformance |
| | MIL-STD-1472G | Human Factors Conformance |
| | MIL-I-45208 | Quality System Conformance |
| | IPC-A-610 II | Acceptability of Electronics Assemblies Certification |
| European Standards | "CE" Compliant | |
| | Restriction of Hazardous Substance (RoHS) Directive Compliant | |
| | Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Directive Compliant | |
| International Standards | IEC 61000-4-2 and EN61000-4-2 | ESD 8Kv contact and 15Kv air Conformance |
| | IEC 61000-4-3 and EN61000-4-3 | Radiated Emissions and Susceptibility Conformance |
| | IEC 61000-6-3 and EN61000-6-3 | Electromagnetic Compatibility Conformance |