

PCNC™ System

The PCNC system is a complete control system for generic or dedicated mechatronic equipment integrating a multi-axis motion sub-system with digital servo control hardware and an advanced GUI developed by NUTEC supported by a PC and matched LCD touchscreen.

This system is supplied as a fully integrated package ready for operation.

nuFace™

The Windows-based GUI for an intuitive Man-Machine Interface

The screenshot displays the NUTEC nuFace GUI for a CNC machine. The interface is divided into several functional areas:

- Program Editor:** Shows a G-code program titled "Reload LOOP Test.NC". The code includes commands for incremental mode, offset setting, origin reset, and a loop reload sequence.
- Operator Panel:** Features a "STOP" button, "Cycle Start" (green play icon), "Feed Hold" (blue pause icon), and a "Single Step" checkbox. A "Feed Override" slider is set to 100%.
- Position Display:** Shows the "Actual Position" with X-axis at 14.12 mm and Y-axis at 13.12 mm.
- Parts Counter:** Displays "Stock" at 280.00 mm and "Part" at 28.02 mm. It also shows "Maximum Count" as 9 and "Remaining" as 8.
- Jog Control:** Includes directional arrows (up, down, left, right) and a "GoTo" button.
- Touch Keyboard:** A virtual keyboard is visible at the bottom left for manual input.
- Status Bar:** At the bottom, it shows "Motion Program : Total Errors: --" and "H2O Flow Rate : 1.2 gal/min".

Interfacing with a servo controlled motion system is greatly facilitated by this Graphic User Interface (GUI) NUTEC developed nuFace™ from the ground-up for any type of application which requires convenient control of a dedicated or generic multi-axis machine. A short learning curve, clear graphics, flexibility for customization and ready availability are features of this off-the-shelf GUI.

This NUTEC developed GUI is a PC windows-based RS274 (G-Code) end user application interface. It is also available as user specified “custom” PC Graphical User Interface

Benefiting from years of positioning application experience, nuFace™ was developed to include a host of user interfaces or application windows. Most prominent, is its embedded Text Editor. In conjunction with the Operator Panel, edit or modify your G-Code files for usability. Debug using a single step or even develop your application process using realtime feedrate adjustment.

Use the Jog Control Panel to make simple navigation a quick and easy task. Move at a variety of speeds, in continuous or step mode. Using the Position Window, watch position, velocity or even following error at the touch of a button. All button controls are touch screen enabled for the most natural Man Machine Interface (MMI.) There is even an on screen touch screen keyboard!

nuFace™ CMS add special features for Cylindrical Micromaching System. Automate parts manufacture using the nuFace™ CMS Parts Counter. For wet applications, monitor Water flow rates in realtime.

Customize nuFace™ IO by naming buttons to reflect your specific IO needs. Add your own text such as “Laser,” “Water,” “Gas,” “EMO,” or whatever you dream up. Even the end-user can modify nuFace™ so it is most easy to use.

nuFace™ makes motion control a modern and convenient experience, even in the most demanding production environments.

nuFace™ Features

- Monitor Position
using Realtime Multi-Axis GUI Display
- Monitor Position Error
using Realtime Multi-Axis GUI Display
- Display Position in Metric, Imperial, or User Units
- Edit/Cut/Paste/Search/Replace/Save/Download
G-Code Text file on-screen using built-in text editor
- Run, Start or Stop G-Code with one mouse click.
- Debug G-Code with Single Step feature.
- Visually Track G-Code Execution Real-Time
with built-in line Highlighter
- Use Serial Port Communications for User Specific Process Control and/or Data/Performance Monitoring
- Verify Process with Integrated USB CCD Camera Image
- Adjust Speed using Feedrate Override
- Stop or Jog to Position Manually Slow/Medium/Fast using GUI Jog Control Palette
- Operate using Touch Screen Display
- Monitor Dedicated and Application Specific IO Status on-Screen
- Setup/Configure System with User preferences
- User configurable for Operator, Service and Engineering modes
- Customize Input/Output buttons labels to match peripheral device interface

nuFace™ CMS Features, Additional

- Use Parts Counter to fabricate multiple parts from tube stock.
- Monitor Water flow rate in Realtime on GUI Display