ServoWorks™ MC-Quad™:

Soft Servo SYSTEMS, INC

Dynamic 4-Axis General CNC Solution

Overview

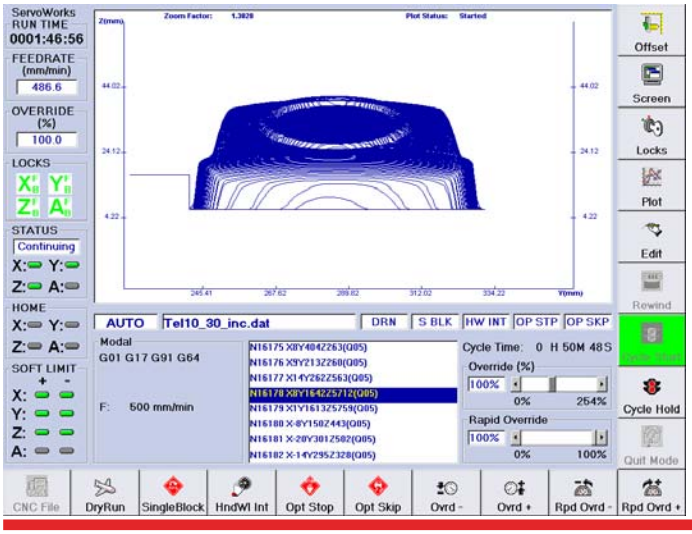
ServoWorks™ MC-Quad™ is an innovative PC-based motion control product for 4-axis general CNC applications. Designed as a controller for machines requiring CNC features but not requiring spindle functions, MC-Quad can be used for welding machines, milling machines and laser cutting machines, and can be customized for bending, punching, forming, measuring and EDM.

Tool Compensation Features

- Tool offset compensation: geometry and wear offsets
- 256 pairs of tool offsets

Display Features

- Simple, colorful CNC-like GUI – will seem familiar because it is Windows-based
- Full-screen, single window with static display areas, permanently anchored toolbars and easy-to-use soft buttons for giving commands and accessing information
- Displays position data, plot, I/O status, servo status, NC status and motion monitoring
- Real-time program execution, position display and plotting
- Real-time I/O, servo, NC status and motion monitoring
- Data display is configurable on-the-fly, in terms of what position types are displayed



Product Features

- 1000 cycle three-dimensional dynamic look-ahead contour control (3D-DLACC) with pre-interpolation acceleration for high-speed, high-precision machining [VersioBus II interface system: one second look-ahead for 1 ms position feedback rate]
- Corner deceleration control for sharper corners while maintaining high feedrates away from corners
- Complete dual-axis synchronous control (for gantry control)
- Provides powerful, automatic execution of motion (part) programs, processing up to 1000 blocks per second
- Linear scale feedback control
- 6 workpiece coordinate systems
- Maximum positioning speed: 300 M/min
- High-speed cutting function: 60 M/min
- Operates with or without a touch panel
- Can be used with a manual pulse generator (handwheel)
- Includes the ServoWorks MotionLite application for servo setup, configuration and tuning
- Can operate on the EtherCAT, VersioBus™ II, Panasonic Realtime Express™ , MECHATROLINK™, Mitsubishi SSCNET™ or CANopen communication platforms
- Available for GUI display in English, Japanese, Korean or Simplified Chinese

PLC Features

- Integrated soft motion and soft PLC
- Includes LadderWorks PLC, an independent PLC package including a real-time soft PLC Engine and the LadderWorks Console – a Win32 application with a user-friendly ladder editor for editing, monitoring, debugging and compiling PLC sequence programs

Consult the ServoWorks CNC Product Parts List or your Soft Servo Systems sales representative regarding standard and optional features for this product.

Basic G Codes*

G00	Rapid traverse
G00.1	Rapid traverse with programmable acceleration/ deceleration
G01	Linear interpolation
G02, G03	CW/CCW circular or helical interpolation
G02.3, G03.3	Positive/negative exponential interpolation
G04	Dwell
G05, G08	Dynamic look-ahead contour control on/off
G10	Program data input
G17-G19	XY/ZX/YZ plane selection
G20, G21	Inch/metric data input
G28, G29	Automatic return to/from reference point
G30	Automatic return to 2nd, 3rd, 4th reference points
G31	Skip cutting
G40-G42	Tool radius compensation cancel/left/right
G43, G44	Positive/negative tool length compensation
G49	Tool length compensation cancel
G50, G51	Scaling off/on
G50.1, G51.1	Mirror image off/on
G52	Local coordinate system selection
G53	Machine coordinate system selection
G54-G59	Workpiece coordinate system 1-6 selection
G61	Exact stop check mode
G64	Continuous cutting mode
G64.1	Continuous cutting mode with block rollover
G65	Simple macro call
G68, G69	Coordinate system rotation on/cancel
G90	Absolute command programming
G91	Incremental command programming
G92	Workpiece coordinate programming
G310, G311	Linear interpolation feedrate include/exclude rotary axes

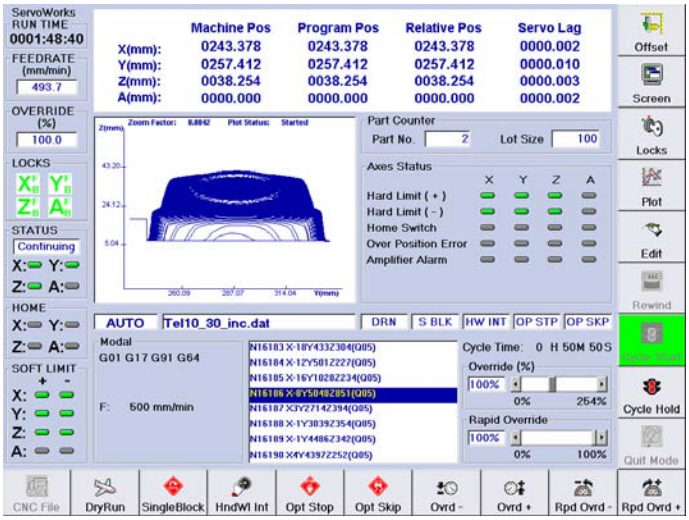
*ServoWorks MC-Quad can be customized to include additional G codes.

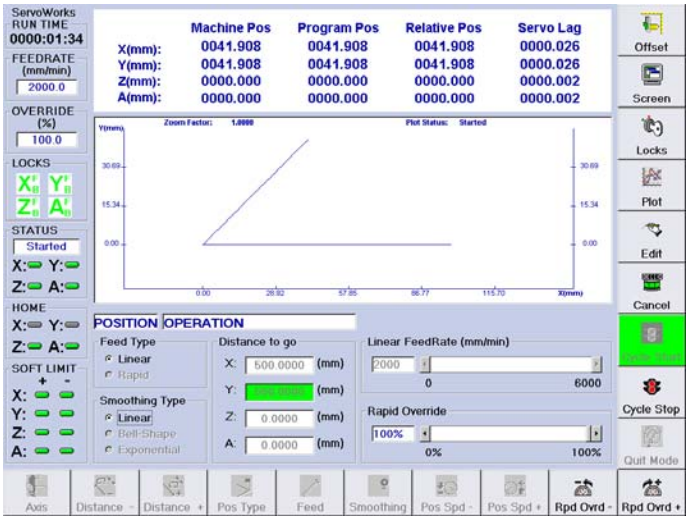
Macro Functions

- Supports local, global, permanent, and system variables (including symbolic global variables)
- Unlimited nesting of branching and repetition conditional statements
- Extensive math operations

Interface Features

- Simple and intuitive HMI — easy to learn and easy to use
- Icon- and soft keys-based operation for manual data input
- Manual NC modes:
  1) Jog Mode
  2) Home Mode
  3) Rapid Mode
  4) Position Mode
  5) MDI Mode
  6) HandWheel Mode (manual jog with a pulse generator)
- Auto Mode: real-time monitoring of G-code execution, with a part counter and a cycle timer
- 800 user configurable alarm messages programmable through PLC
- Password protection for parameter settings
- Easy connection of equipment to business-oriented applications running on the network
- The ServoWorks MC-Quad Windows HMI application can be fully customized by using the ServoWorks Development Kit (SDK)





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