CENTROID™
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www.centroidcnc.com

Acorn CNC Controller: A CNC Hardware and Software kit.

A do-it-yourself 4 axis CNC control board for use with Mills, Lathes, Routers, Plasma and a wide variety of machine tools and special applications.

The Centroid Acorn CNC controller is a 4 axis step and direction CNC control board with built-in Motion Control CPU, PLC with 8 optically isolated inputs and 8 relay outputs , 1 encoder input, a 12 bit analog output for control of a VFD, and four axis drive interface connections along with PWM output for BLDC and Laser control. Acorn runs in conjunction with Centroid CNC12 CNC control software on a PC that meets the Centroid minimum CNC PC requirements and communicates though a reliable Ethernet connection with the CNC PC. Acorn runs on standard G and M codes. Create part programs with the built-in conversational software or any CAD/CAM system.

On-board Motion Control CPU

Acorn contains its own on-board Motion Control CPU, the AM335x 1gHz ARM Cortex A8 processor which generates reliable smooth motion pulses to the motors. Acorn does not rely on the Windows PC CPU for time critical motion motion control, inputs, outputs or other machine functions. This results in a rock solid CNC control that does not hiccup or get bogged down by Windows interfering with the motion.

Optional Wireless MPG Control Pendant allows the operator to conveniently and precisely set up jobs and tools remotely.

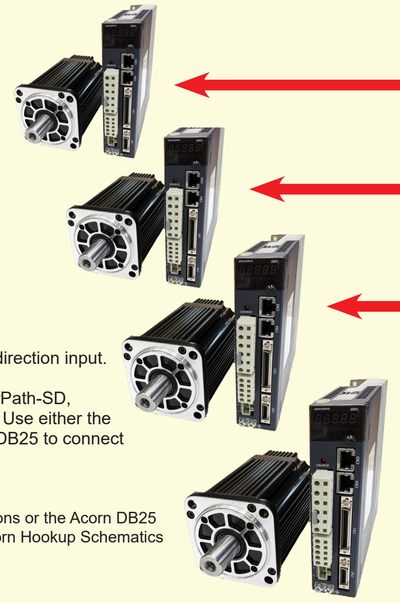
8 Relay Outputs for devices controlled by the Acorn PLC, add-on up to 56in/56out

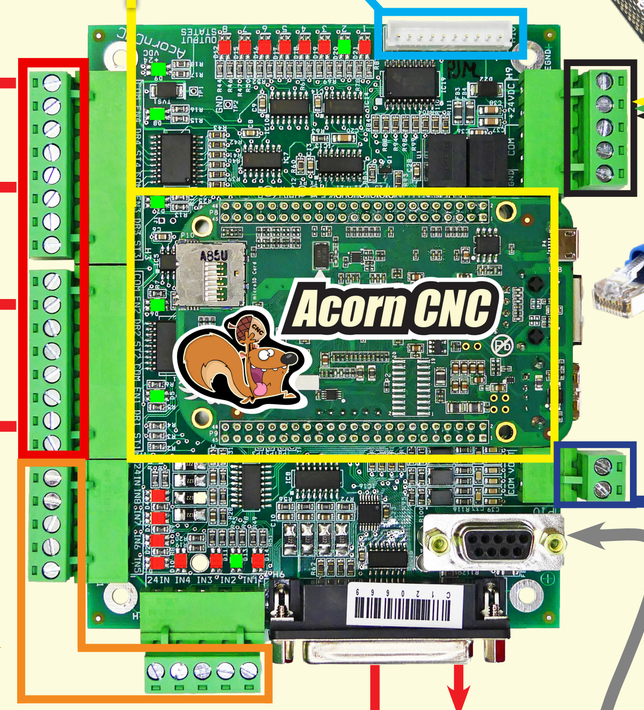
Command and control larger Relays, Contactors, Solenoids, etc.. Common examples: Air Solenoids, Water pumps, Lube Pumps, Dust collection, Estop contacotrs, etc. Outputs are controlled by M-codes, PLC and/or the operator control panel and are user configurable. Add up to 56 in and 56 out with the Acorn Ether1616 add on I/O board!

World Power
Accepts 50/60 Hz
100-120 or 200-240 VAC

Touch Screen Enabled Centroid CNC12 Software

Reliable Ethernet communication between the CNC PC and the Acorn CNC control board. Any Windows 10 PC that meets the Centroid minimum performance requirements can be used with Acorn. The on screen Virtual Control Panel is user configurable and allows individual customization and control over button functionality, color, text size and placment. The Centroid Acorn CNC software is provided in three levels, "Centroid Free CNC", "Centroid Pro", and "Digitzing Bundle". As the name implies Centroid Free CNC is free to download and use for Educational, Home Hobby use and start up Shops.





Ethernet Communication

Control Stepper Motors and/or Servo Motors! Step and Direction Drive Interface for Four Axes

Control most any axis motor drive that accepts step and direction input.

For example: Gecko, Teco, Estun, Yaskawa, Teknic ClearPath-SD, DMM, Delta, Leadshine and many others. Up to 4 axes. Use either the Acorn header connections for Servo Drives or the Acorn DB25 to connect to a Stepper motor drive.

Maximum compatibily!
Depending on drive input type use the Acorn header connections or the Acorn DB25 to command drives with step and direction signal. See the Acorn Hookup Schematics for guidence.

Spindle Drive Control

Control any spindle motor drive that accepts 0-10 VDC analog input. Acorn has professional grade 12 bit 0-10 VDC analog output for fine motor RPM adjustment. Acorn analog output allows true programmable spindle speed control via G-code and manual controls via the Centroid touch screen operator control panel and the Wireless MPG. Auto/MAN, On the fly RPM override, ON/OFF, CW/CCW. PWM Output for BLDC spindle motor drives is also provided via the DB25 connector.

Spindle Motor Drive Control
0-10 vdc analog out

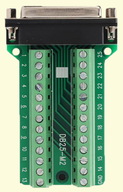
3 phase output

1 or 3 phase input,
no phase converter needed

Eight user configurable optically Isolated Inputs.
Switch and sensor inputs to the Acorn PLC.

PWM Output
for Laser and BLDC

5 VDC TTL Line Driver Stepper Motor Drive
DB25 Step and Direction Output



Encoder Input

The Acorn Encoder input allows the use of a rotary encoder or a linear scale. Rotary encoders are used for spindle encoder feedback for mills and lathes (used with Rigid Tapping and Threading) Scales are used as DRO positional display such as 2 axis knee mills or 3 axis bed mills quill position DRO or other applications. Acorn accepts industry standard RS422 type differential quadrature encoder output with A, B, and Z channels Use male DB9 connector and shielded cable to connect to the Acorn board.

Probe Ready! Use your own or one of Centroid's

CNC touch probe compatible. Use a touch probe for Probing, Digitizing and Automatic Tool Height Measurement. Build your own probe, conductive or switch type (kinematic seat) or use one of Centroid's industrial quality probes: KP-3 and TT-4.

KP-3 Touch Probe

TT-4 Automatic Tool Height Measurement

8 Inputs for switches and sensors such as home, limit switches,proximity switches, low lube switch, drive fault, gear range indicator and many other uses

Use the Acorn header connections for Servos and the the Acorn DB25 connector to connect to a Stepper motor drive. The Acorn DB25 signal pinout locations are software configurable for no solder connections to match existing drive cable pinouts!

Acorn CNC controller kit (part# 14455)

Centroid Acorn CNC controller kit includes:

- Acorn CNC control board
- 24 VDC logic power supply
- Plug and Play Relay 8 board w/ cable
- Logic power supply hookup leads
- 110 VAC power cord
- 15' Sheilded Ethernet cable
- Centroid Free CNC software

Acorn CNC Software Levels

- Centroid "Free" CNC12
- Acorn "Pro" CNC12
- Acorn "Digitizing Bundle"

Acorn CNC controller kit part# 14455