
DA301

Stepper Motor Control Accessories

Introduction

The DA301 stepper motor controller requires a power supply and a driver board for each motor before it can be put into service. An Auxiliary Controller and a Master Controller may also be added to expand its capabilities.

Motor Drivers

Each motor requires a driver to convert the signals from the DA301 into currents suitable for driving the windings of a stepper motor.



The DA302, shown left, is a bipolar chopper-controlled drive for a two-phase stepper motor (4, 6 or 8-wires). It can be operated in full step or half

step modes, can generate currents up to 1 Amp and is suitable for hybrid motor sizes 17 and 23. Drive current may be adjusted using an on-board potentiometer. The supply to the unit can be anywhere between 9 and 30 Volts, but a 5 Volt supply is also required. The unit is connected directly to the motor outputs of the DA301 using a 5-way ribbon cable.

Power Supply Unit

The DA300 PSU provides power for three stepper motors and the 5 Volt supply needed by the controllers. The output voltage and current depends on the rating of the transformer employed, but a typical unregulated supply would be 13 Volts at 4 Amps. The transformer is connected via screw terminals and a PC-type power socket is used for attaching DA302 motor drives.

Auxiliary Controller

A useful feature of the DA301 is that another DA301 may be connected to it via its serial port. This type of connection is not to be confused with the SPI (Serial Peripheral Interface), used to connect slaves to a master. An Auxiliary Controller is programmed in the same way as a normal motor controller, but it is under the sole direction of instructions passed to it from its peer. Additional motors and digital i/o may be operated in this way.

Master Controller



A Master Controller provides a stepper motor control system with a user interface. It also expands its capabilities by adding extra 'intelligence' by way of its HCBASIC programming language.

A Master Controller can manage up to 16 Slave Controllers connected together to its Serial Peripheral Interface port (SPI). This is used for communicating with and for directing slave controllers. A hand-held Master Controller is shown alongside.

Software

EditMacro and **HCConfig** are two Windows® based software applications designed for use with Slave and Master Controller modules respectively.

EditMacro contains tools for configuring and programming stepper motor modules to perform specific tasks. The DA301 is operated using an inbuilt stepper motor control language that contains over 60 different instructions. These can be assembled together as a series of instructions (macros) for performing specific tasks. Once configured, the settings and programs remain indefinitely, but they may be loaded, edited and saved as disk files.

HCConfig is used to program and configure a Master Controller module and is programmed using HCBASIC:-

- Supports dimensionable variables including Boolean, Integer, Floating Point and String types.
- Has definable 'Functions' for entering parameters and general system operation and control.
- Manages interactive Keypad and Display.
- Contains comprehensive selection of floating-point functions, including trigonometric functions.
- SPI link for up to 16 Slave Motor Controllers.
- Serial port connection to PC or output to printer.
- Inbuilt Timers.
- Designed for turnkey systems.
- Multitasking ability.