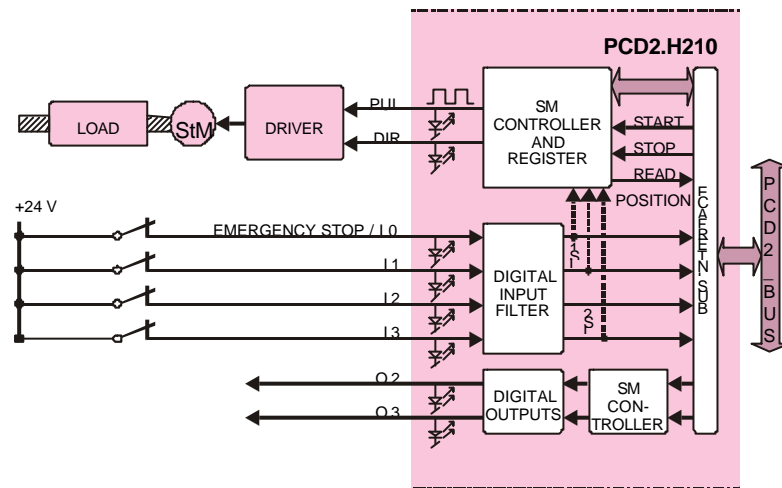


1. Introduction

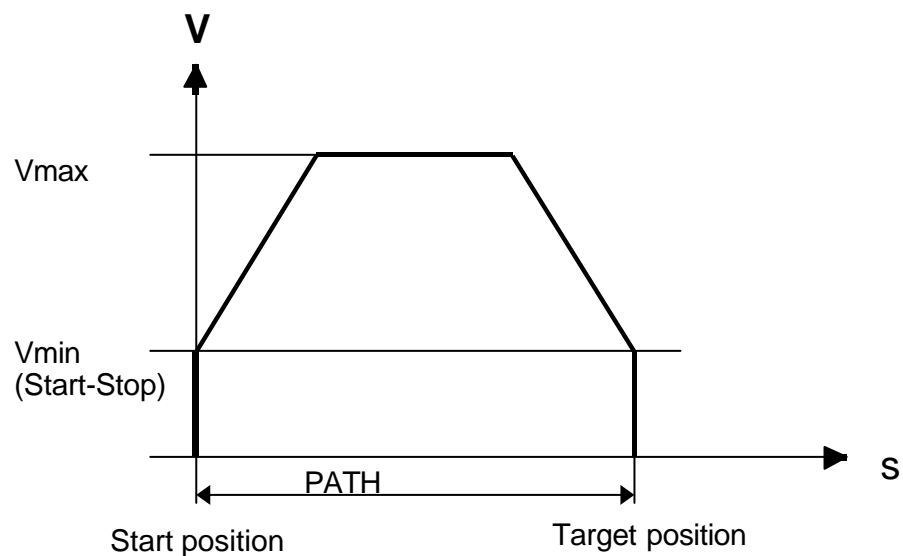
1.1 General

The PCD2.H210 module permits the completely autonomous control and monitoring of motion cycles for one stepper motor with run-up and braking ramps. Each .H210 module controls an independent axis and supplies a single-phase pulse train to the power stage for a stepper motor.

Block diagram of a stepper motor



Typical moving profile



1.2 Function and application

This low-cost module can be plugged into any I/O socket on a PCD1 or PCD2. It is used to drive the power stage for a stepper motor axis up to a frequency of 19.53 kHz.

This means that up to 16 axes can be controlled with the PCD2.Mx27 and up to 4 axes with a PCD1. Since each ..H210 module additionally has 4 configurable digital inputs and 2 digital outputs, 16 axes provide up to 64 more digital inputs and 32 digital outputs which are available for other process control tasks.

The ..H210 module permits the completely autonomous control and monitoring of motion cycles for one stepper motor with run-up and braking ramps. The commands necessary for the cycle of stepper motor movements are transmitted to the module by function blocks or direct peripheries access in the user program. During movement, the SM processor monitors the frequency profile, controlling acceleration and braking ramps to drive the axes to their destination position without loss of steps. Each ..H210 module controls an independent axis. However, several axes can be started in co-ordinated, quasi-synchronous operation.

1.3 Main characteristics

- Low-cost controller for open loop operation, with high accuracy and reliability.
- Frequency (9.54 to 19530 Hz), acceleration and pulse counts are controlled with quartz precision.
- Current axis position or number of output pulses can be read at any time.
- Input I 2 can be used as a normal 24 VDC digital.
- 3 additional inputs are available. These can be configured during initialisation as either normal 24 VDC digital inputs, as limit switches (I 1 and I 3, which cause a stop with brake ramp) and/or as emergency stop (I 0).
- 2 digital outputs (0.5 A, 24 VCD) are available on the same module for other process tasks.

1.4 Typical areas of application

- Automatic handling and assembly machines
- Pick and place functions
- Palletising equipment
- Automatic angle control, e. g. of cameras, headlamps, aerials, etc.
- For the general control of drives requiring high torque from stationary
- Motion control of static axes (set-up)

1.5 Programming

Direct periphery access allows accessing all the module functionality. Also some FC have been made to simplify the module handling, they are described in the chapter 8.

initialisation commands

- Periphery address declare in the configuration DB
- Select the frequency range
- Activate emergency-stop function
- Activate limit switches functions
- Load Vmin (start-stop frequency)
- Load Vmax
- Load acceleration

Execution commands

- Load the relative destination
- Start motion (start pulse output)
- Stop (interrupt) motion
- Read counter (read position)
- Read module identity
- Set/reset digital outputs

