



Sciencetech TechBooks are compact and user friendly learning platforms to provide a modern, portable, comprehensive and practical way to learn technology.

Sciencetech 2458R Stepper Motor Control Set introduces students the operation and control of stepper motor effectively. It helps the students in understanding half and full step angle of stepper motor. The LEDs provide the visual indication of the coil excitation process. It has a provision for connecting the motor with an external controller.

Features

- Microcontroller based design for 10 modes of operation.
- Half and full step angle control.
- Potentiometer for stepper motor speed control.
- Direction control using toggle switch and controller.
- 16X2 LCD display for mode display
- Tact switch for mode navigation , selection and operation.
- Visual indication of the coil excitation.
- Separate unit for motor in transparent cabinet.
- Easy to operate.

Scope of Learning

Mode 1-Full step:

- When start/set button is depressed, the motor will turn CW 50pulses@200Hz, 8 times with 0.2secs interval. After that, it will pause 1sec then, it will turn CCW 400pulses@300Hz, 720deg.

Mode 2-Step running

- Each time start/set button is depressed, the motor will advance CW 10 pulses@1Hz. After 8 times CW, advancement, each time start/set button is depressed, the motor will advance CCW 10 pulses@1Hz.

Mode 3-Free running

- When the start/set button is depressed, the motor will rotate CW 300pulses@100Hz and then stop for 1 second. Then motor will rotate CCW 500pulses@200Hz.

Mode 4-Half step

- When the start/set button is depressed, the motor will rotate CW 600pulses@200Hz and then stop for 1 second. Then motor will rotate CCW 1000pulses@400Hz.

Mode 5-Jog drive

- When the start/set button is depressed, the motor will rotate 1pulse@100Hz. Direction of turn is determined by CW/CCW toggle switch. The number of pulses is saved into the controller memory for motor to return to starting position in mode 7.

Mode 6-Continuous drive

- When the start/set button is depressed, the motor will rotate 1pulse@100Hz. Direction of turn is determined by CW/CCW toggle switch. The number of pulses is saved into the controller memory for motor to return to starting position in mode 7.

Mode 7-Return drive

- When the start/set button is depressed, the motor will rotate continuously. The speed of rotation is determined by the potentiometer. The pulse frequency of the controller is from 20Hz to about 1040Hz. When the start/step button is depressed again, the motor will stop rotating. The number of pulses is saved into the controller memory for motor to return to starting position in mode 7.

Mode 8-Excitation sequence

- When the start/set button is depressed, the controller will move to the internal initial position, that was saved into memory under mode 5 or mode 6.

Mode 9-Roulette

- When the start/set is depressed, the motor will start to rotate. When start/set is depressed again, the motor will stop after a delay that is random.

Mode 10- Stepper driver

- In the mode, the control circuit board acts as a pure 2 phase stepper motor driver.

Technical Specifications

Stepper Motor

Motor type	:	Bipolar
Torque	:	4 Kg-cm
Phase current	:	0.8 Amp.
Stepping angle	:	1.8
Operating voltage	:	12 V DC
Input pulse	:	5V TTL Compatible

Selection of modes

Mode 1	:	Full step
Mode 2	;	Step running
Mode 3	:	Free running
Mode 4	:	Half step
Mode 5	:	Jog drive
Mode 6	:	Continuous drive
Mode 7	:	Return drive
Mode 8	:	Excitation sequence
Mode 9	:	Roulette
Mode 10	:	Stepper driver
Display	:	16 x2 LCD
Tact switch	:	6 nos. (navigation, selection, operation, start and reset.)
Potentiometer	:	For speed control
Toggle switch	:	For direction
Test points	:	20 nos.
Power Supply	:	230V \pm 10%
Dimension (mm)	:	W326 X D252 X H52
Operating conditions	:	0-40°C, 80% RH
Weight	:	1.5 Kgs. (approximately)

Package Contains

Motor unit	:	1 no.
TechBook Power Supply	:	1 no.
Mains cord	:	1 no.
Patch cord	:	5 nos.