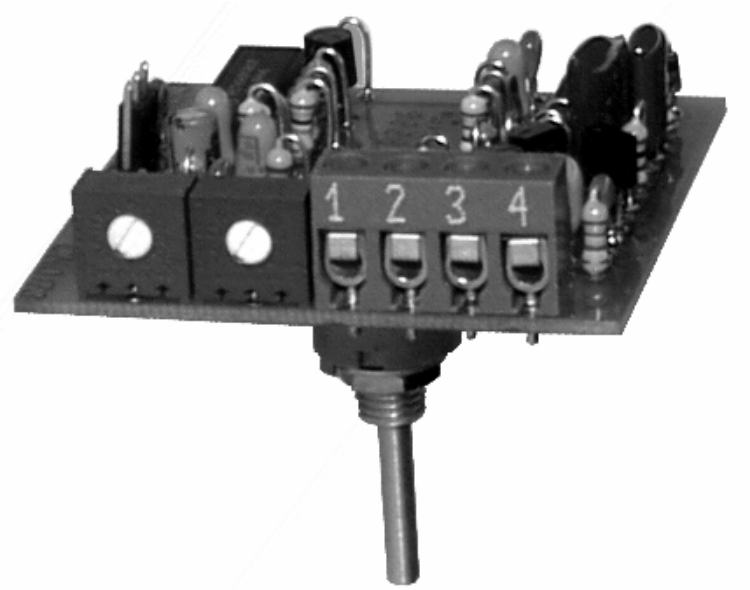
# CN0173
## STEP PULSE GENERATOR




## OPERATING MANUAL

CENTENT COMPANY
3879 SOUTH MAIN STREET 714-979-6491
SANTA ANA, CALIFORNIA 92707-5710 U.S.A.

This manual contains information for installing and operating the following Centent Company product:

CN0173 Step Pulse Generator

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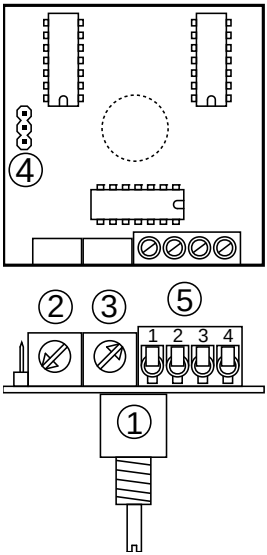
## GENERAL DESCRIPTION

The CN0173 is a small panel mounted oscillator intended for use in step motor applications. It supplies a step pulse train to the step motor driver. The CN0173 provides excellent linearity and gives the user control of base speed, maximum speed, and rate of acceleration via three on-board potentiometers. The CN0173 is available in nine versions based on the maximum speed or frequency attainable on the Step Pulse Output. See Specifications, page 3, to select the appropriate version for the application.

## LOCATION OF COMPONENTS




### (1) MAXIMUM SPEED TRIMPOT

This potentiometer sets the Maximum Speed of the CN0173. Clockwise rotation of the potentiometer increases speed. Maximum Speed is adjustable from zero to full scale (1 KHz to 1 Mhz, depending on the version). If the Maximum Speed is set to a value less than the Base Speed, the motor will run at the Base Speed value, with no acceleration.

### (2) BASE SPEED TRIMPOT

This trimpot sets the Base Speed from which acceleration begins when the Start/Stop Input goes active (low). The CN0173 returns to Base Speed after deceleration (Start/Stop inactive). The speed range and trimpot rotation are the same as for the Maximum Speed Trimpot. Base Speed is typically set to 1-3 revolutions/second.

### (3) ACCELERATION RATE TRIMPOT

This trimpot sets the rate of acceleration from Base Speed to Maximum Speed. This is also the rate of deceleration at the end of a move. The Acceleration Rate Trimpot is adjustable over a 20 to 1 range. Clockwise rotation of the trimpot decreases the rate of acceleration/deceleration.

### (4) RANGE SELECT HEADER

This three pin header sets the range of the Acceleration Rate Trimpot. With no jumper installed the acceleration rate (from Base to Maximum Speed) ranges from .005 to .1 seconds. A jumper between pins 1 and 2 selects a .05-1 second range. A jumper between pins 2 and 3 selects a .5-10 second range.

**WARNING: WHEN PINS 2 AND 3 ARE SHORTED, THE CN0173 WILL RUN FROM 1 TO 10 SECONDS WHEN POWER IS FIRST APPLIED.**

## (5) INPUT/OUTPUT CONNECTOR

The pin assignments for this four terminal connector are listed below. No connectors are required on the wiring to the CN0173. A wire size of 16-22 gauge is recommended. Stranded conductor wire is preferred. The insulation should be stripped back .25 inches and the wire left untinned.

**TERMINAL 1** **START/STOP INPUT**

A low logic level on this TTL compatible input will cause the CN0173 to begin outputting step pulses according to the parameters set by the potentiometers. The CN0173 will accelerate from Base to Maximum Speed at a rate set by the Acceleration Rate Trimpot. Upon achieving Maximum Speed the oscillator will continue to output pulses at Maximum Speed until the Start/Stop Input logic level is taken high. The CN0173 will then decelerate to Base Speed and stop.

**TERMINAL 2** **STEP PULSE OUTPUT**

This TTL compatible, open collector output is connected to the step motor drive's Step Pulse input. An external pull-up resistor is required if not provided by the step motor drive. Centent Step Motor Drives do not require a pull-up resistor on the step input. For other drives consult the drive manufacturer for connection instructions.

Maximum output frequency is 1 KHz to 1 MHz, depending on the version ordered. The version is marked on the circuit board as 1, 5, 10, 30, 20, 40, 50, 100 or 1000. See Specifications for maximum frequency for each version.

**TERMINAL 3 & 4** **POWER SUPPLY**

Terminal 3 is the +5 VDC Power Supply input for the CN0173. The unit requires a 5 volt regulated power supply and draws a maximum of 20 milliamps of current. If the CN0173 is connected to a CENTENT COMPANY step motor drive, connect the power supply's 5 volt output to the drive's +5 VDC terminal as well.

Terminal 4 is the Power Supply Ground input for the CN0173.

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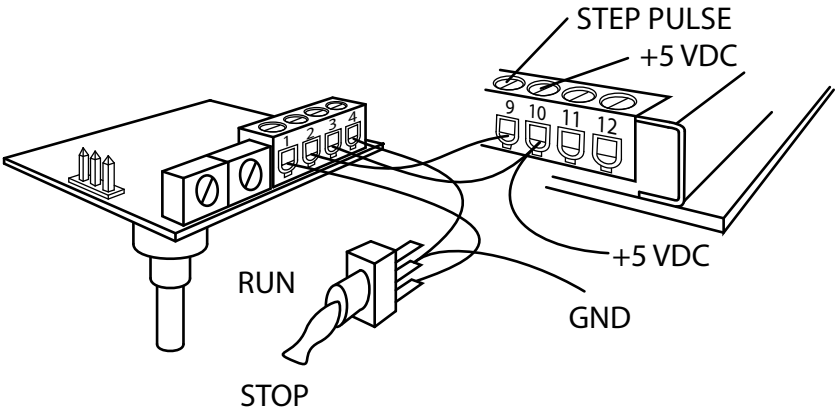
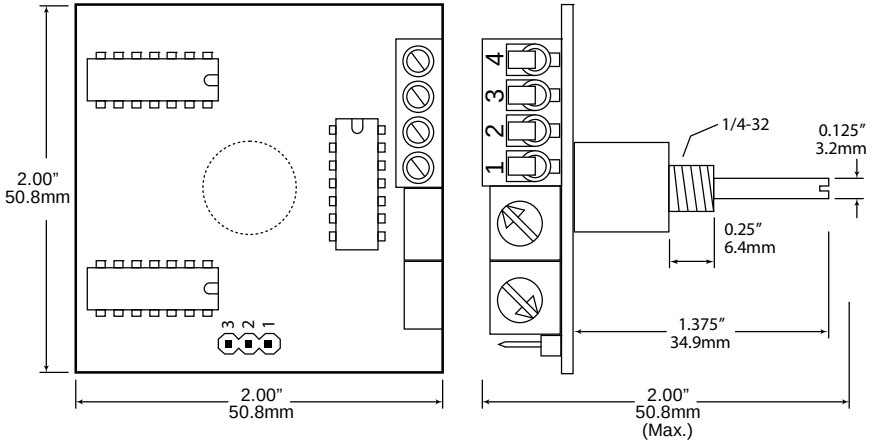
The following diagram illustrates the connections between the CN0173 oscillator and one of the CENTENT step motor drives. Refer to the drive's manual for further details.






## SPECIFICATIONS

| | MIN. | MAX. | UNITS |
|---|---|---|---|
| **ELECTRICAL** | | | |
| POWER SUPPLY | | | |
| Voltage | 4.5 | 5.5 | VDC |
| Current | -- | 20 | mA |
| STEP PULSE OUTPUT | | | |
| Output Voltage | 0 | 5 | VDC |
| Duty Cycle | 50 | 50 | % |
| Frequency | | | |
| Version 1 | 0 | 1 | KHz |
| Version 5 | 0 | 5 | KHz |
| Version 10 | 0 | 10 | KHz |
| Version 20 | 0 | 20 | KHz |
| Version 30 | 0 | 30 | KHz |
| Version 40 | 0 | 40 | KHz |
| Version 50 | 0 | 50 | KHz |
| Version 100 | 0 | 100 | KHz |
| Version 1000 | 0 | 1 | MHz |
| RUN INPUT | | | |
| Logic '0' | 0 | 2.5 | VDC |
| Logic '1' | 2.5 | 5 | VDC |
| | | | |
| **ENVIRONMENTAL/MECHANICAL** | | | |
| Operating temperature | 0 | +70 | °C |
| Weight | 25 | 31 | grams |
| Size (L x W x H) | 2 x 2 x 2 | | inch |
| Mounting hole diameter | 0.25 | | inch |
| Terminal Screw Torque | | 4.5 | lb/in |