

# HSI Stepper Motor Drivers

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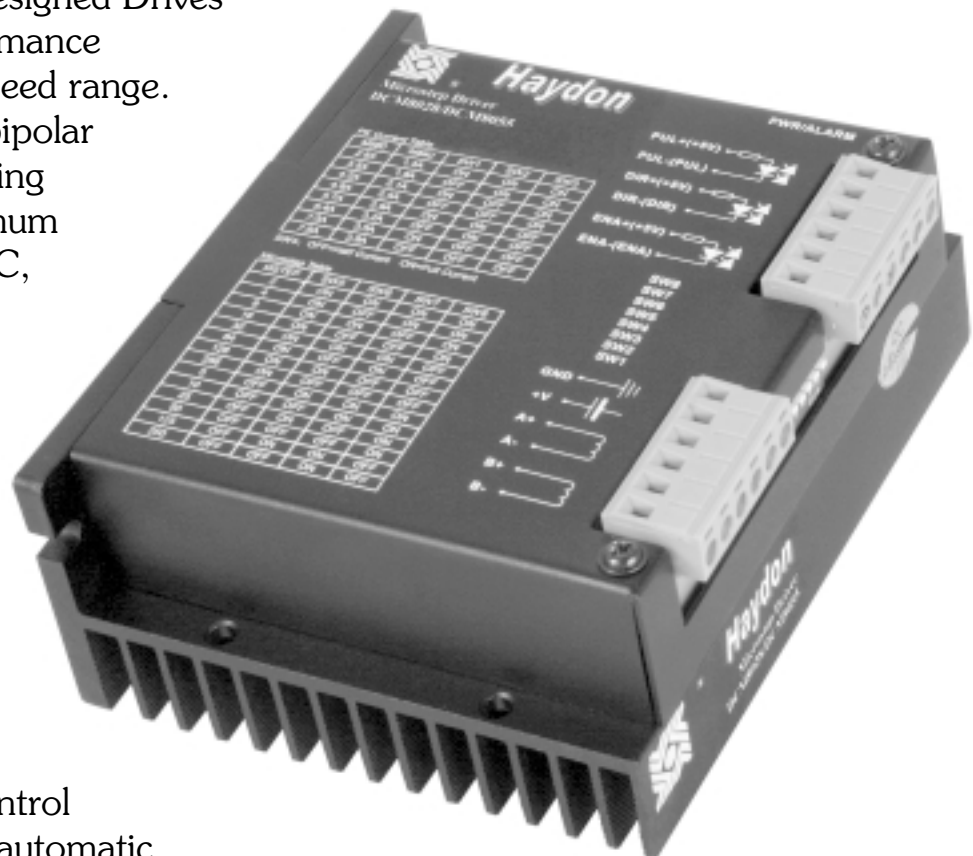
**Haydon has designed an advanced series of drivers to efficiently operate motors to their peak performance. With several options to select from, Haydon can help you set up a system that will power-up any application.**

## Micro Stepping Drives #DCM8028 & DCM8055

Haydon High Performance Micro Stepping Chopper Drives based on some of the most advanced technology in the world today. Providing a cost effective solution for production volume requirements, the small size allows designers to use these Drives in limited space and they are also easily integrated with other electronic systems. Design time is reduced because incorporating these Drives is far simpler than developing a custom drive circuit. They are suitable for driving 2-phase step motors (maximum current ratings of 2.8 A and 5.5 A per phase).

These specially designed Drives deliver optimum performance throughout a greater speed range. By using an advanced bipolar constant-current chopping technique, and a maximum input voltage of 80 VDC, they can produce more speed and power from the same motor, compared with traditional technologies such as L/R drives.

The DCM8028 and DCM8055 feature high performance, low cost, compact size, mixed decay current control for less motor heating, automatic idle-current reduction and micro step resolutions

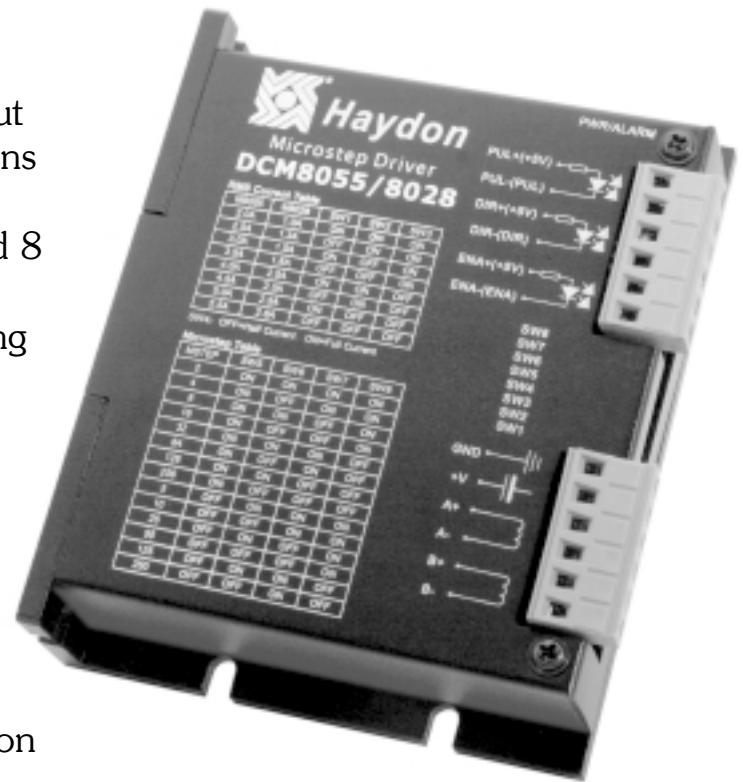


# Micro Stepping Drives #DCM8028 & DCM8055

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from 1/2 step to 1/256. There are fourteen micro step resolutions selectable in decimal and binary. The output current levels and micro step resolutions are easily set via the 8 bit DIP switch. These Drives are suitable for 4, 6, and 8 lead motors.

Ideal for a wide range of stepping motors such as low voltage version of sizes 11, 14, 17, 23 and 34, used in various kinds of machines, such as X-Y tables, labeling machines, laser cutters, engraving machines, and pick-place devices. These Drives are particularly useful in motor applications requiring low noise, low vibration, high speed and high precision requirements.



## Drive #DCM8028 & DCM8055 Features

- User friendly Chopper Drive
- Ideal for a wide range of stepping motors
- Suitable for 4, 6, 8 lead motors
- Inaudible 20 khz chopping frequency
- TTL compatible and optically isolated input signals
- 14 selectable microstep resolutions in decimal and binary
- Current minimum from 1.0 A to 5.5 A/phase maximum
- Automatic idle reduction
- Voltage from 20 VDC to 80 VDC input
- 4 5/16" x 4" x 1 1/8" (11.0 cm x 10.2 cm x 2.9 cm)



# Bipolar Chopper Drive #DCS4020 Features

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- On-board or external step pulse clock
- On-board or external single step switch
- On-board or external step rate control potentiometer
- On-board or external direction control
- On-board or external full step / half step control
- On-board or external outputs enable control
- On-board or external current control potentiometer

## Bipolar Chopper Drive #DCS4020 Technical Data

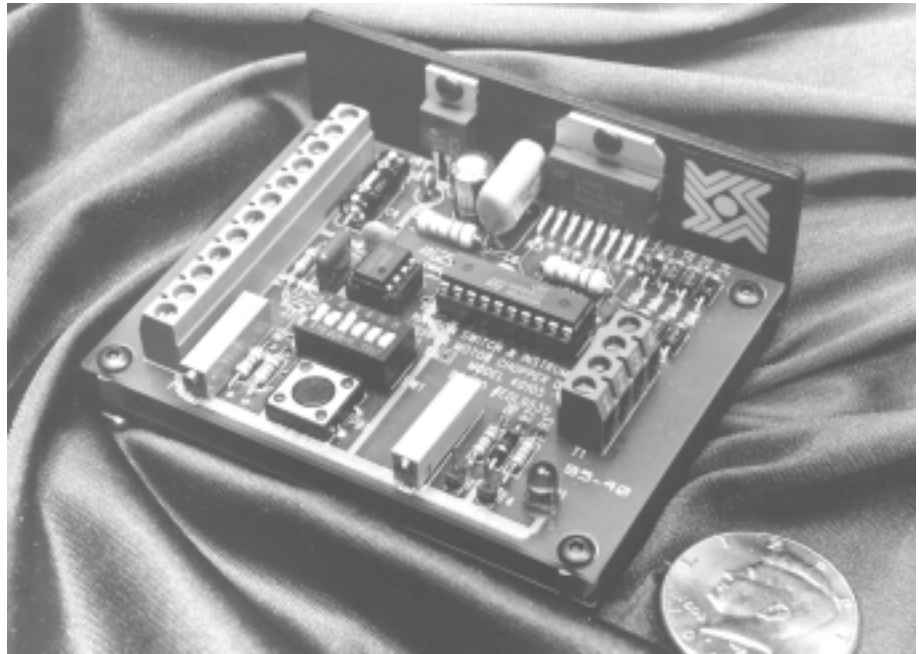
<b>Size:</b>	4.47" x 3.38" x 1.31" (113.54 mm x 85.85 mm x 33.27 mm)
<b>Power Requirement:</b>	Single unregulated, providing +20 VDC to +40 VDC
<b>Output Current:</b>	Fully adjustable from 66 mA/Ø to 2 A/Ø continuous duty
<b>Continuous rating:</b>	2A/Ø
<b>Peak, non-repetitive rating:</b>	3A/Ø
<b>Chopper Frequency:</b>	~20 Khz
<b>Onboard Oscillating Range:</b>	<10 pulses/sec. to >2,000 pulses/sec.
<b>Stepping:</b>	Full step/Half step capability
<b>I.C.s:</b>	
<b>S.T. Micro: L297</b> (control I.C.) and <b>L298</b> (4A dual full wave bridge)	

# Haydon Bipolar Chopper Drive # 40105

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A chopper drive is a power-efficient method of current driving a stepping motor to obtain higher stepping rates. Torque, likewise, is maintained which otherwise would have diminished due to the effects of counter E.M.F. and increased coil impedance.

HSI's bipolar chopper drive (Part No. 40105) has been designed for easy set-up and use. Just connect a single power supply and a motor and its ready to run! Motor current is set using an on-board potentiometer. No external current setting resistors are required. This feature-packed drive provides all basic motor controls, including full or half stepping



of bipolar steppers and direction control. An oscillator circuit is standard on the drive with an on-board speed control potentiometer. In addition, external input/output signals allow complete remote control of all drive functions.

Unipolar chopper drives are not generally recommended due to their lower inherent operating efficiency.

The average input power rating of the motor must be adhered to, otherwise overheating will result. It is permissible to operate at 2X rated current (4X power) utilizing a 25% duty cycle.

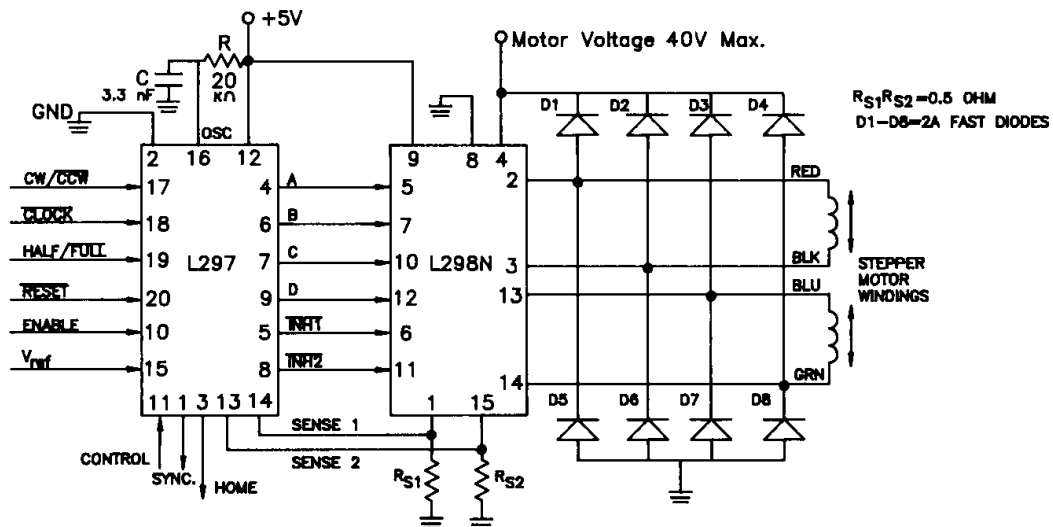
# Chopper Drive # 40105 Features

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- On board or external step pulse clock
- On board or external single step switch
- On board or external step rate control potentiometer
- On board or external direction control
- On board or external full step/half step control
- On board or external outputs enable control
- On board output current control potentiometer
- External “home” output
- External reset control
- External chopper synchronous output

## Chopper Drive # 40105 Technical Data & Drawing

<b>Size:</b>	3.75" x 2.95" x 1.5" (95.3 mm x 74.9 mm x 38.1 mm)
<b>Power Requirement:</b>	Single unregulated, providing +24 VDC to +40 VDC
<b>Output Current:</b>	Fully adjustable from 66 mA/Ø to 3 A/Ø
<b>Continuous rating:</b>	2A/Ø
<b>Peak, non-repetitive rating:</b>	3A/Ø
<b>Chopper Frequency:</b>	~20 KHz
<b>Onboard Oscillating Range:</b>	<10 pulses/sec. to >2,000 pulses/sec.
<b>Stepping:</b>	Full step/Half step capability



**I.C.s:**  
**SGS Thomson: L297** (control I.C.)  
 and **L298** (4A dual full wave bridge)

# Whisper™ Drive # 44103

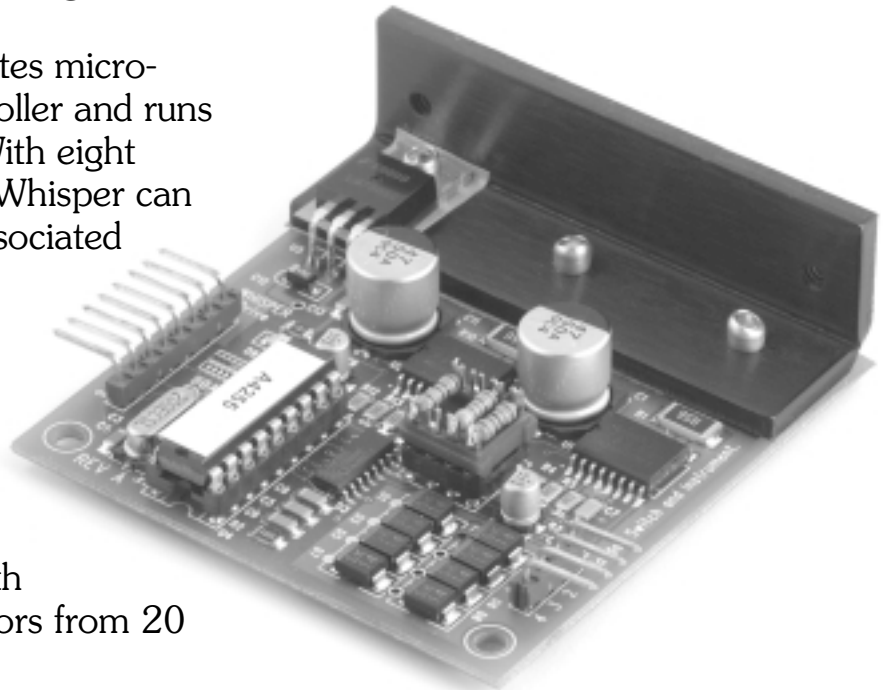
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A compact, microstepping drive for can-stack stepper motors that provides a cost effective solution for production volumes. Its ease of integration and small physical size allows for quick integration into your design.

The Whisper incorporates microstepping technology, a controller and runs off a single power supply. With eight microsteps per full step, the Whisper can smooth out cogging often associated with Can-stack steppers.

The drive has a mixed current decay mode for reduced resonance and improved microstepping. Microstepping also reduces audible noise in the motor.

The Whisper can be used with all HSI linear and rotary motors from 20 mm to 46 mm diameters.



## Whisper Drive # 44103 Features

- Bipolar chopper/constant current technology
- Automatic mixed current decay
- Selectable step; Full, 1/2, 1/4, 1/8 step
- Use single power supply for motor and drive
- Output enable/disable control
- Physically compact

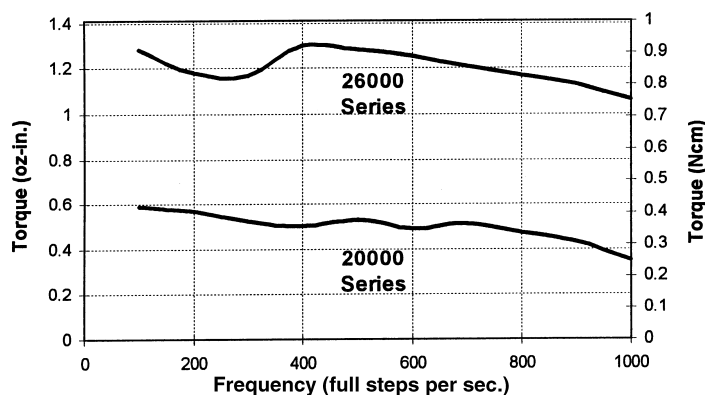
# Whisper Drive # 44103 Technical Data

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<b>Size (approx.):</b>	2.65" x 2.55" x .86" (67.31 mm x 64.77 mm x 21.84 mm)
<b>Power Requirement:</b>	Regulated, 24 VDC to 28 VDC power supply
<b>Output Current:</b>	Up to 1 A/ø
<b>Recommended Motor Coil Voltage:</b>	Bipolar, 5 VDC
<b>Required External Step Pulse Range:</b>	Up to 8000 pps for 1000 full sps
<b>Stepping:</b>	Up to 8 microsteps per full step
<b>Part Number:</b>	44103

## Whisper Drive # 44103 Performance Curves

**Series 20000 & 26000 Rotary Motors**



**Series 36000 & 46000 Rotary Motors**

