

## Leadshine 2-phase Digital Stepper Drives

Leadshine has been an industry leading motion control supplier since 1997, and is one of the largest stepper drive manufacturers in the world. Leadshine steppers offer high quality products (Leadshine factories are ISO9001 certified) at very affordable prices. Leadshine steppers are simple, easy to use, long-lasting, and reliable.

AutomationDirect sells a wide range of linear and switching power supplies, stepper motors, cables, and PLCs with hi-speed outputs that are compatible with Leadshine stepper drives.

### Features

- 2-phase digital stepper drives
- Anti-resonance for optimal torque, extra smooth motion, low motor heating and noise
- Motor auto-config on power up
- All drives support step and direction control, some models support CW/CCW as well
- Micro-stepping for smooth motor movement
- DIP switch configurable
- Wide range of input voltages supported (12-110 VDC, 18-80 VAC)
- Pulse input frequency up to 200kHz
- Soft-start with no "jump" when powered on
- Automatic idle-current reduction
- Protections for over-voltage and over-current
- NEMA 11, 14, 17, 23, 24, 34 and 42 frame size step motors supported



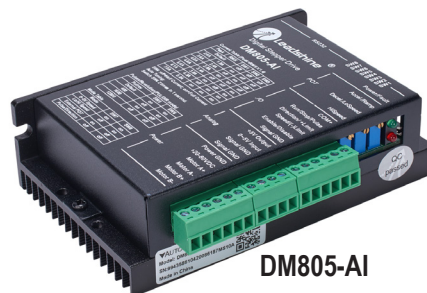
Leadshine Series – Drives Features Comparison <sup>1</sup>								
Drive Model	DM322E	DM542E	DM556E	DM860E	DMA860E	DM805-AI	EM542S	EM556S
Price								
Drawing	<a href="#">PDF</a>	<a href="#">PDF</a>	<a href="#">PDF</a>	<a href="#">PDF</a>	<a href="#">PDF</a>	<a href="#">PDF</a>	<a href="#">PDF</a>	<a href="#">PDF</a>
Drive Type	2-phase digital stepper drive							
Supply Voltage	12–30 VDC (24 VDC typical)	20–50 VDC (24–48 VDC typical)		24–74 VDC (48–68 VDC typical)	24–110 VDC (48–90 VDC typical) or 18–80 VAC (36–70 VAC typical)	20–80 VDC (30–60 VDC typical)	20–50 VDC (24–48 VDC typical)	
Pulse Input Type	Single-ended <sup>2</sup>	Differential, Single-ended				Single-ended <sup>2</sup>	Differential, Single-ended	
Step Input Modes	Step & Direction			Step & Direction, CW & CCW		Step & Direction, Analog input	Step & Direction, CW & CCW	
Digital Input Voltage	5V (add a 1K resistor to accept +12V input, or a 2K resistor to accept +24V input)						DIP switch selectable for 5V or 24V	
PPR Range	400–12800	400–25600		400–51200		200–12800	200–25600	
Motor Output Current Range	0.3–2.2 A peak (0.2–1.6 RMS)	1.0–4.2 A peak (0.7–3.0 RMS)	1.8–5.6 A peak (1.3–4.0 RMS)	2.4–7.2 A peak (1.7–5.1 RMS)		2.6–7.0 A peak (0.3–5.0 RMS)	2.4–7.2 A peak (1.7–5.1 RMS)	
Digital Output	No						+24VDC (Brake and Fault Detection)	
Self-test Capable	No	No	No	No	No	Yes	Yes	Yes
Special Features	Soft-start, motor auto-config				Accepts a DC or an AC power supply, soft-start, motor auto-config	Built-in pulse generator, command source	Auto-tuning, soft-start, fault and brake outputs, shaft lock	

<sup>1</sup> - Refer to Specifications Tables for detailed specifications.

<sup>2</sup> - See the User Manual or Quick Start Guide for instructions on wiring Single-Ended drives to a Differential (Line Driver) controller.

## DM805-AI

The DM805-AI is capable of pulse and direction as well as analog input and speed control, with motor auto-configuration on power up and motor self-test capability. Comes with built in potentiometers for adjusting accel and decel rates and can be controlled via an external potentiometer.



**DM805-AI**

Leadshine DM805-AI Specifications		
<b>Drive Model</b>		<b>DM805-AI</b>
<b>Output Current</b>		2.6–7.0 A peak (0.3–5.0 RMS)
<b>Input Voltage</b>		20–80 VDC (60VDC typical)
<b>Logic Signal Current</b>		7–16 mA (10mA typical)
<b>Pulse Input Frequency</b>		0–200 kHz
<b>Minimal Pulse Width</b>		2.5 $\mu$ s
<b>Minimal Direction Setup</b>		5.0 $\mu$ s
<b>Isolation Resistance</b>		500m $\Omega$
<b>Pin Functions</b>	<b>Run/Stop or Pulse</b>	Pulse signal: 5V signal, single-ended input. High input is 4-5V, Low input is 0-0.5 V. Minimum pulse width = 2.5 $\mu$ s. Add a 1k $\Omega$ resistor for +12V signals, 2k $\Omega$ for +24V signals. Run/Stop Function: Close (pull low) to enable the motor.
	<b>Direction or +Limit</b>	DIR signal: 5V signal, single-ended input. High input is 4-5V, Low input is 0-0.5 V. Minimum pulse width = 2.5 $\mu$ s. Add a 1k $\Omega$ resistor for +12V signals, 2k $\Omega$ for +24V signals. Direction Function: requires 5 $\mu$ s setup time. (+)Limit Function: Close (pull low) to stop motor movement in the positive direction.
	<b>Speed or (-)Limit</b>	Speed: 5V signal, single-ended input. High input is 4-5V, Low input is 0-0.5 V. Minimum pulse width = 2.5 $\mu$ s. Add a 1k $\Omega$ resistor for +12V signals, 2k $\Omega$ for +24V signals. Speed Function (Low Speed/High Speed Mode): Close (pull low) to select Lo Speed pot setpoint. Open (float high) to enable Hi Speed pot setpoint. (-)Limit Function: Close (pull low) to stop motor movement in the negative direction.
	<b>Enable/Disable</b>	Enable signal: 5V signal, single-ended input. High input is 4-5V, Low input is 0-0.5 V. Minimum pulse width = 2.5 $\mu$ s. Add a 1k $\Omega$ resistor for +12V signals, 2k $\Omega$ for +24V signals. Enable Function: Close (pull low) to disable the drive.
<b>Replacement Connectors</b>		Power = 6-pin from STP-CON-4; I/O = 6-pin from STP-CON-4; Analog = 4-pin from STP-CON-4
<b>Cooling</b>		Natural cooling or forced cooling
<b>Ambient Temperature</b>		0°C to 50°C (32°F to 122°F)
<b>Humidity</b>		40–90% relative humidity
<b>Operating Temperature</b>		70°C (158°F) max
<b>Vibration</b>		4.9 m/s <sup>2</sup> max
<b>Storage Temperature</b>		-20°C to 65°C (-4°F to 149°F)
<b>Self Test</b>		Yes
<b>Configuration Cable</b>		1.4.4-0609505-B3
<b>Weight</b>		264g (9.3 oz)

### Leadshine Series Drive Cables

Optional Configuration Cable	Compatible With	Price
1.4.4-0609505-B3	DM805-AI	

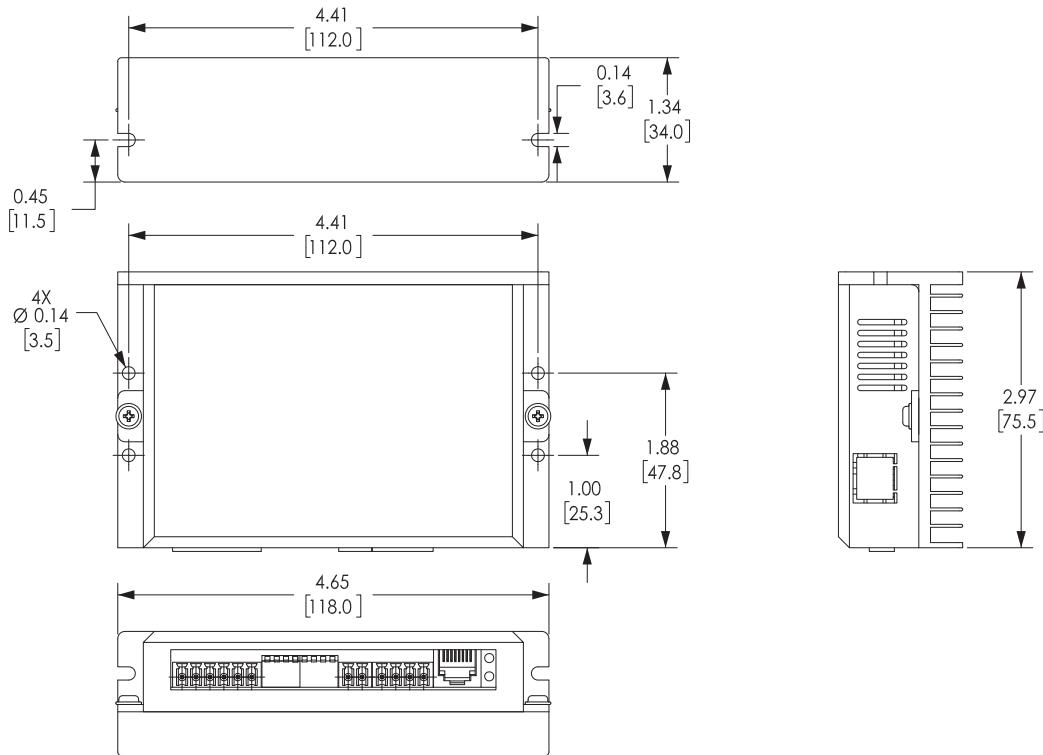
*Note: Configuration cable only required if using optional configuration software. Software configuration not necessary unless DIP switch settings and auto-tuning aren't sufficient for your application. Requires an RS232 port on your PC, or a USB to RS232 converter, like USB-RS232.*



**1.4.4-0609505-B3**

## DM805-AI Dimensions

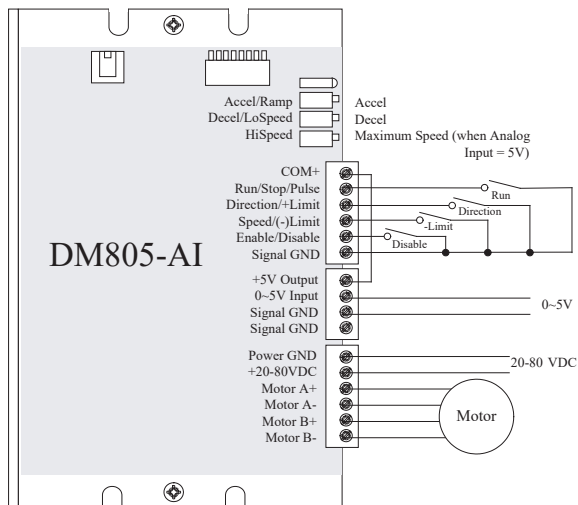
Dimensions = in [mm]



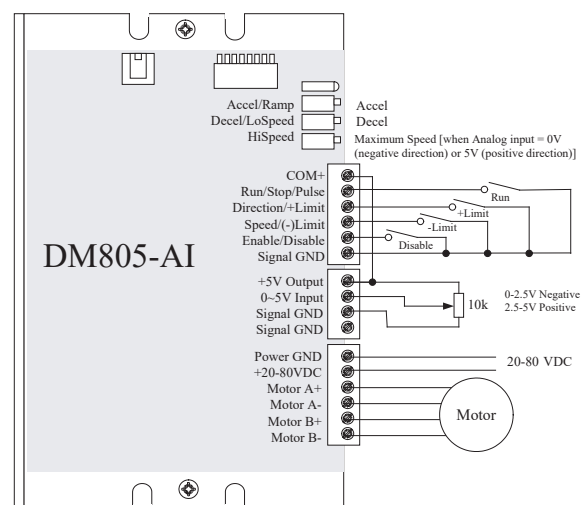
## DM805-AI Wiring

The DM805-AI has four different operation modes that can be selected through DIP SW7 and SW8, and can also be wired to a differential controller.

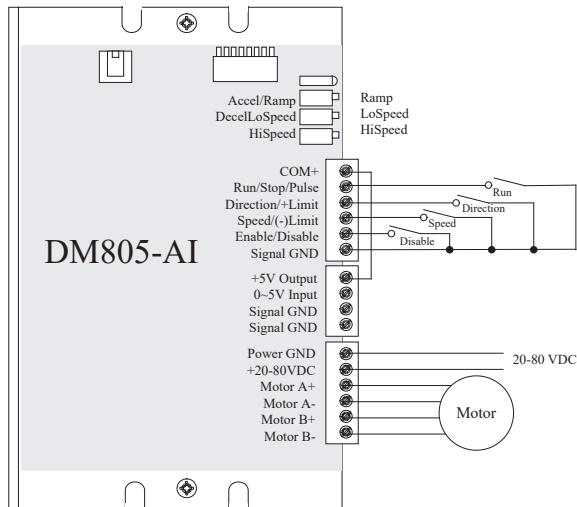
### DM805-AI Wiring for Analog Speed Mode



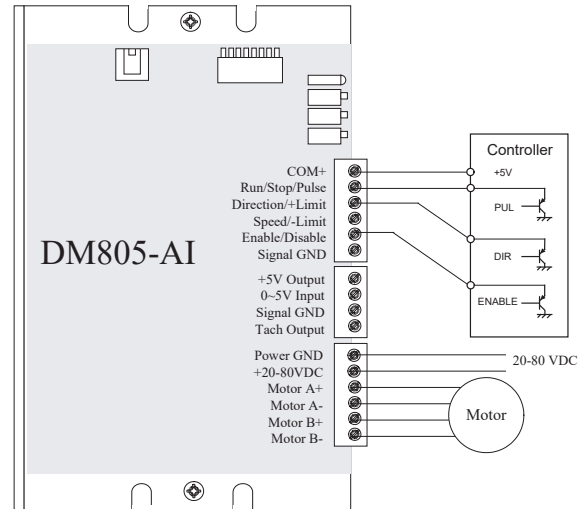
### DM805-AI Wiring for External Pot Mode



## DM805-AI Wiring for Low/High Speed Mode



## DM805-AI Wiring for Pulse/Direction Mode



## DM805-AI Wiring for Differential Control Signal

