Leadshine

Stepping Drives

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 Comparison1								
Drive Model	**DM322E**	**DM542E**	**DM556E**	**DM860E**	**DMA860E**	**DM805-AI**	**EM542S**	**EM556S**
Price	$27.50	$39.00	$43.00	$53.00	$69.00	$113.00	$50.00	$61.00
Drawing	PDF	PDF	PDF	PDF	PDF	PDF	PDF	PDF
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-ended2	Differential, Single-ended				Single-ended2	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)	0.5-4.2A peak (0.4-2.9 RMS)	0.5-5.6A peak (0.4-3.9 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	

1 - Refer to Specifications Tables for detailed specifications.
2 - See the User Manual or Quick Start Guide for instructions on wiring Single-Ended drives to a Differential (Line Driver) controller.

Leadshine

Stepping Drives

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	
Drive Model	**DM805-AI**
Output Current	2.6–7.0 A peak (0.3–5.0 RMS)
Input Voltage	20–80 VDC (60VDC typical)
Logic Signal Current	7–16 mA (10mA typical)
Pulse Input Frequency	0–200 kHz
Minimal Pulse Width	2.5 µs
Minimal Direction Setup	5.0 µs
Isolation Resistance	500mΩ
Pin Functions — **Run/Stop or Pulse**	Pulse signal: 5V signal, single-ended input. High input is 4-5V, Low input is 0-0.5 V. Minimum pulse width = 2.5 µs. Add a 1 resistor for +12V signals, 2k for +24V signals. Run/Stop Function: Close (pull low) to enable the motor.
Direction or +Limit	DIR signal: 5V signal, single-ended input. High input is 4-5V, Low input is 0-0.5 V. Minimum pulse width = 2.5 µs. Add a 1k resistor for +12V signals, 2k for +24V signals. Direction Function: requires 5µs setup time. (+)Limit Function: Close (pull low) to stop motor movement in the positive direction.
Speed or (-)Limit	Speed: 5V signal, single-ended input. High input is 4-5V, Low input is 0-0.5 V. Minimum pulse width = 2.5 µs. Add a 1k resistor for +12V signals, 2k 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.
Enable/Disable	Enable signal: 5V signal, single-ended input. High input is 4-5V, Low input is 0-0.5 V. Minimum pulse width = 2.5 µs. Add a 1k resistor for +12V signals, 2k for +24V signals. Enable Function: Close (pull low) to disable the drive.
Replacement Connectors	Power = 6-pin from STP-CON-4; I/O = 6-pin from STP-CON-4; Analog = 4-pin from STP-CON-4
Cooling	Natural cooling or forced cooling
Ambient Temperature	0°C to 50°C (32°F to 122°F)
Humidity	40–90% relative humidity
Operating Temperature	70°C (158°F) max
Vibration	4.9 m/s2 max
Storage Temperature	-20°C to 65°C (-4°F to 149°F)
Self Test	Yes
Configuration Cable	1.4.4-0609505-B3
Weight	264g (9.3 oz)

Leadshine Series Drive Cables		
Optional Configuration Cable	**Compatible With**	**Price**
1.4.4-0609505-B3	DM805-AI	$5.50

1.4.4-0609505-B3

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.
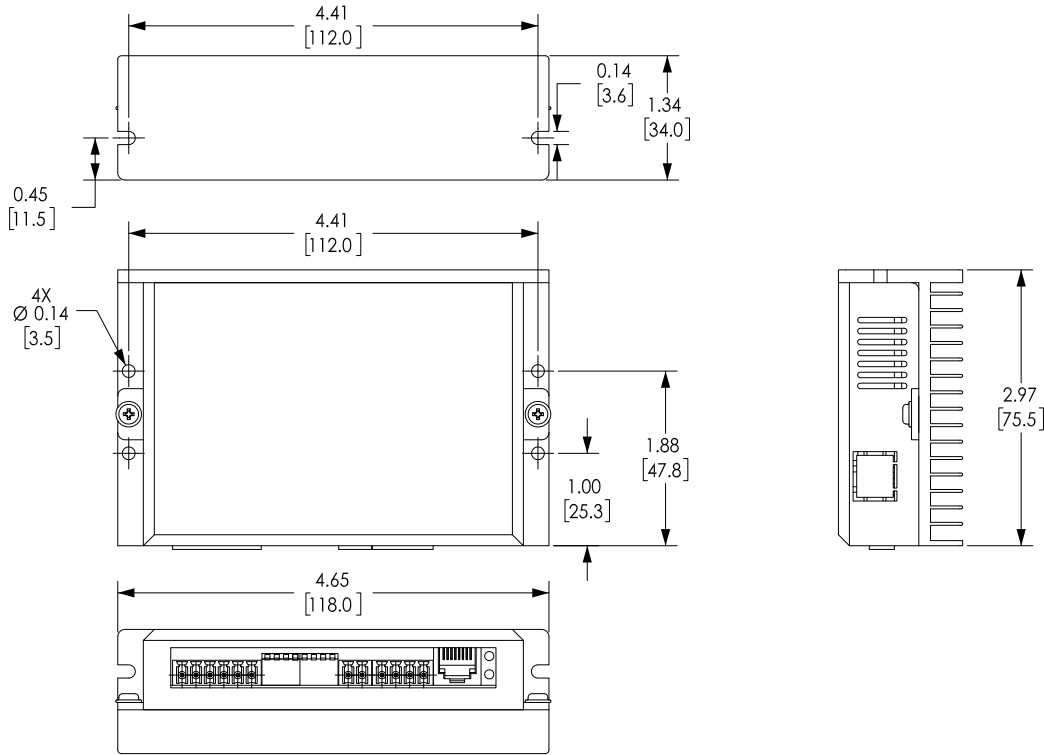
Note: ProTuner for DM805-AI is not officially supported by the manufacturer for Operating Systems newer than Windows 7. Some Win10 and Win11 PCs will still run the software, but there is no guarantee from the manufacturer. See a potential solution for newer OS compatibility in our Community Forum:
https://community.automationdirect.com/s/question/0D5Dp00000WPRm8KAH/fix-for-dm805ai-protune

Leadshine

Stepping Drives
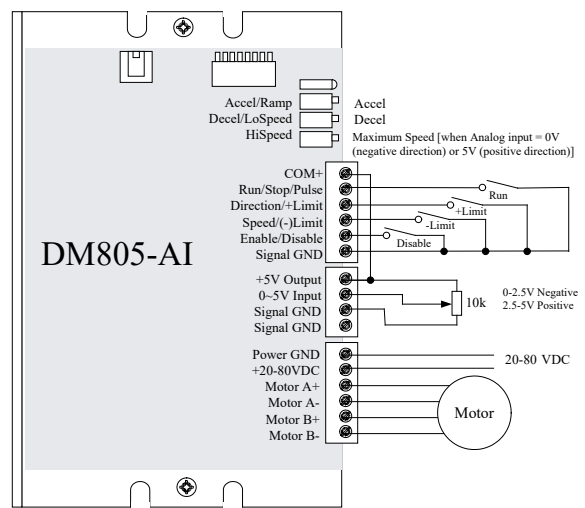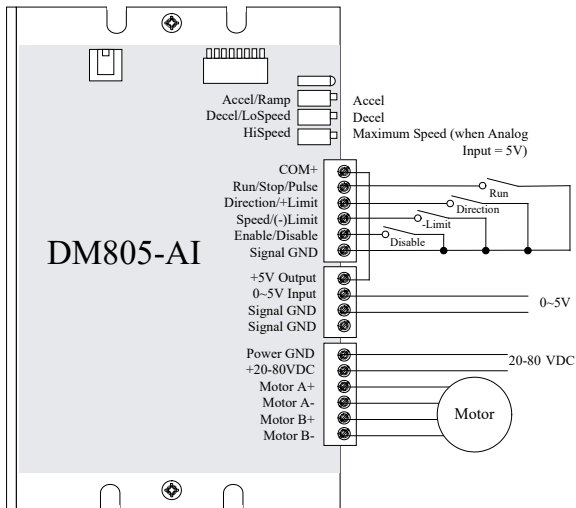
DM805-AI Dimensions

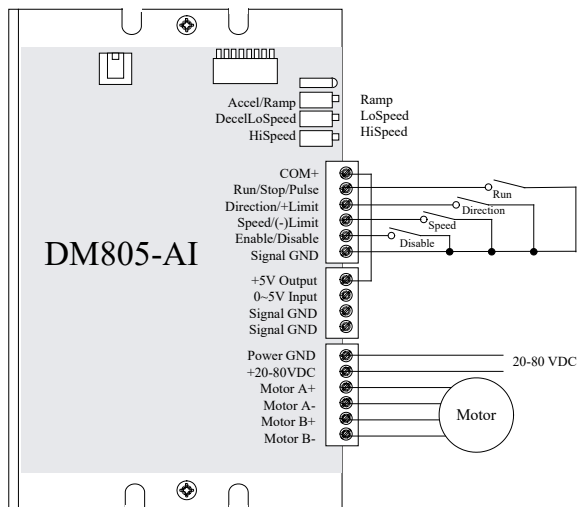*Dimensions = in [mm]*

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.
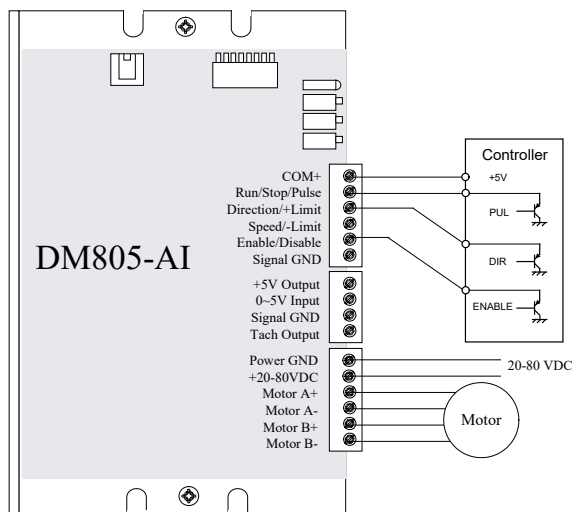
DM805-AI Wiring for Analog Speed Mode

DM805-AI Wiring for External Pot Mode

Leadshine

Stepping Drives

DM805-AI Wiring for Low/High Speed Mode

Accel/Ramp
DecelLoSpeed
HiSpeed

Ramp
LoSpeed
HiSpeed

DM805-AI

COM+
Run/Stop/Pulse
Direction/+Limit
Speed/(-)Limit
Enable/Disable
Signal GND

Run
Direction
Speed
Disable

+5V Output
0~5V Input
Signal GND
Signal GND

Power GND
+20-80VDC
Motor A+
Motor A-
Motor B+
Motor B-

20-80 VDC

Motor

DM805-AI Wiring for Pulse/Direction Mode

Controller

COM+
Run/Stop/Pulse
Direction/+Limit
Speed/-Limit
Enable/Disable
Signal GND

+5V
PUL
DIR
ENABLE

DM805-AI

+5V Output
0~5V Input
Signal GND
Tach Output

Power GND
+20-80VDC
Motor A+
Motor A-
Motor B+
Motor B-

20-80 VDC

Motor

DM805-AI Wiring for Differential Control Signal

R=0 if VCC=5V
R=1K(Power>0.125W) if VCC=12V
R=2K(Power>0.125W) if VCC=24V
R must be connected to control signal terminal

Accel/Ramp
DecelLoSpeed
HiSpeed

Controller

COM+
Run/Stop/Pulse
Direction/+Limit
Speed/(-)Limit
Enable/Disable
Signal GND

VCC
PUL+
PUL-
DIR+
DIR-
ENA+
ENA-

R
R
R

DM805-AI

+5V Output
0~5V Input
Signal GND
Signal GND

Power GND
+20-80VDC
Motor A+
Motor A-
Motor B+
Motor B-

Note: Although the controller has a pair of
differential outputs (+,-), the + output is not
used in this configuration