

# STEPPING DRIVER ADT42

## Features:

- 1: Low cost, high torque under high speed condition**
- 2: AC and DC both can be used:**  
DC24V-DC50V, AC24V-AC35V ,  
AC1(V+), AC2(GND)  
Supply voltage up to +50VDC, peak current up to 4.2A
- 3: Automatic idle-current reduction**
- 4: Suitable for 2-phase and 4-phase stepper motors**
- 5: Optically isolated input signals**
- 6: 15 selectable resolutions, up to 25,600 steps/rev**
- 7: PUL/DIR & CW/CCW mode optional**
- 8: Small size (118\*88\*35mm)**

## Introduction:

ADT42 is an economical high performance driver based on one of the most advanced technologies in the world today. It is suitable for driving any 2-phase and 4-phase hybrid stepping motors. By using advanced bipolar constant-current chopping

technique, it can output more speed and power from the same motor, compared with traditional technologies such as L/R drivers. Its 3-state current control technology allows coil currents to be well controlled, with relatively small current ripple and therefore less motor heating.

### Applications:

Suitable for a wide range of stepping motors of Nema 17 and 23, and usable for various kinds of machines, such as X-Y tables, labeling machines, laser cutters, engraving machines, and pick-place devices. Extremely suitable for applications expected to be low vibration, high speed and high precision.

### Electronic Specifications (T<sub>j</sub>=25°C) :

parameters	ADT-42			
	Min	Typical	Max	Unit
<b>Output current</b>	1.0	-	4.20	A
Supply voltage AC2(GND)	+20	+24	50	VDC
Supply voltage AC1(V+)				
Supply voltage AC1	+15	+24	35	VAC
Supply voltage AC2				

Logical signal current	7	10	16	mA
Pulse input frequency	0	-	300	KHz
Isolation resistance	500			MΩ

### Microstep setting:

Microstep	steps/rev (1.8° /rev)	SW5	SW6	SW7	SW8
NC		ON	ON	ON	ON
2	400	OFF	ON	ON	ON
4	800	ON	OFF	ON	ON
8	1600	OFF	OFF	ON	ON
16	3200	ON	ON	OFF	ON
32	6400	OFF	ON	OFF	ON
64	12800	ON	OFF	OFF	ON
128	25600	OFF	OFF	OFF	ON
5	1000	ON	ON	ON	OFF
10	2000	OFF	ON	ON	OFF
20	4000	ON	OFF	ON	OFF
25	5000	OFF	OFF	ON	OFF
40	8000	ON	ON	OFF	OFF
50	10000	OFF	ON	OFF	OFF
100	20000	ON	OFF	OFF	OFF
125	25000	OFF	OFF	OFF	OFF

### Current setting:

Peak current(A)	RMS(A)	SW1	SW2	SW3
1.0	0.71	ON	ON	ON

1.46	1.04	OFF	ON	ON
1.91	1.36	ON	OFF	ON
2.37	1.69	OFF	OFF	ON
2.84	2.03	ON	ON	OFF
3.31	2.36	OFF	ON	OFF
3.76	2.69	ON	OFF	OFF
4.20	3.0	OFF	OFF	OFF

## Pin Assignment and Description

### Control Signal Connector P1 pins

Pin functions	Details
PUL+	<p><b>Pulse signal:</b> In single pulse(pulse/direction) mode, this input represents pulse signal, effective for each rising or falling edge(set by inside jumperJ1);4-5V when PUL-HIGH,0-0.5V When PUL-LOW. For reliable response, pulse width should be longer than 1.5 <math>\mu</math> s. Series connect resistors for current-limiting when +12v or +24v used.</p>
PUL-	
DIR+	<p><b>DIR signal:</b> In single-pulse mode, this signal has low/high voltage level, representing two directions of motor rotation; For reliable motion response, DIR signal should be ahead of PUL signal PUL signal by 5 <math>\mu</math> s. at least.4-5V when DIR-HIGH,0-0.5V when DIR-LOW. Please note that motion direction is also related to motor-driver wiring match. Exchanging the connection of two wires for a coil to the driver will reverse motion direction.</p>
DIR-	
ENA+	<p><b>Enable signal:</b> This signal is used for enable/disabling the driver. High level(NPN control signal, PNP and Different control signals are on the contrary, namely</p>

<b>ENA-</b>	Low level for enabling.) for enabling the driver and low level for disabling the driver. Usually left UNCONNECTED(ENABLED)
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Remarks: When PUL+/DIR+/ENA+ is DC 12v, you need to connect 1k resistance,  
Power > 1/8w  
When PUL+/DIR+/ENA+ is DC 24v, you need to connect 2k resistance,  
Power > 1/8w  
Resistance must be connected to controller signal terminal.

## Power connector P2 pins

Pin functions	Details
<b>AC2(GND)</b>	DC power ground
<b>AC1(V+)</b>	DC power positive, typical value 24V
<b>AC2</b>	AC24V-AC35V
<b>AC1</b>	
<b>Phrase A</b>	Motor coil A (leads A+ and A-)
<b>Phrase B</b>	Motor coil B (leads B+ and B-)

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