

Boxer Pumps > Products > Accessories

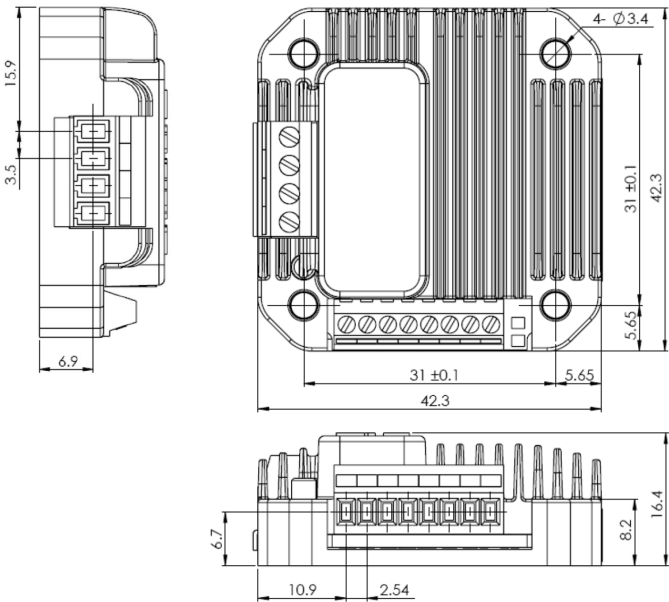
Stepper driver with analogue speed control input for accurate flow control of all Boxer stepper motor driven peristaltic pumps. 2 different models are available for 2.0 A and 4.0 A power requirements.



Technical Data

Driver Type	Full H-Bridge for 2 phase unipolar stepper motors
Size / Mounting	Nema 17 motors (15KS/15QQ): direct on motor
	Nema 23 motors (6K, 6KP, 15KS+/15QQ+, 25K): via adapter plate on motor
	Nema 14 (9K, 9QQ and 9QX): separate to motor
Voltage Range	10 to 30 V DC
Max Current	2.0 or 4.0 A
Current Limiter Factory Setting	0.9 A / 2.8 A (2.0 A Driver / 4.0 A Driver)
Control Inputs	Enable, run / stop, high / low speed, direction, speed
Control Outputs	5 V DC reference output (for use with external potentiometer for speed control)
Jumpers (on reverse side)	For speed range adjustment
Current Limiter (on reverse side)	To reduce motor temperature
Micro-Stepping	1/16 (fixed)
Automatic Acceleration (during start or speed adjust)	Ramp over 0.3 seconds
Max Working temperature	85 °C
Weight	100 g

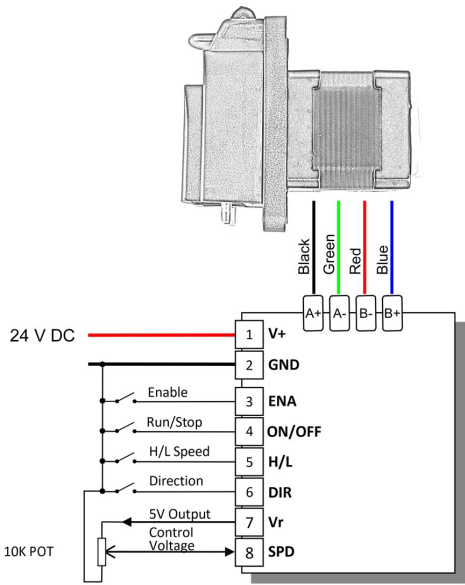
Drawing



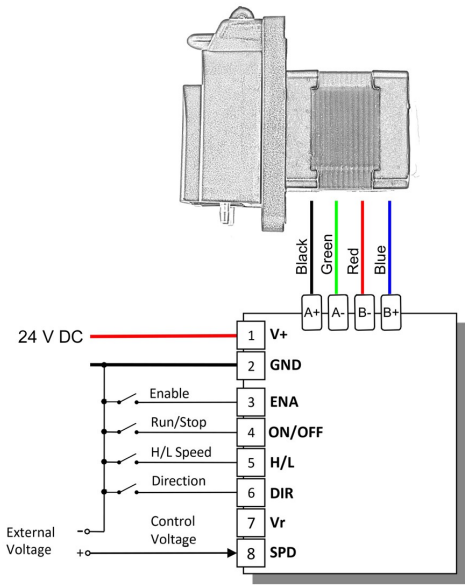
Links to Drawing and STEP file:
→ [Drawing \(.png\)](#)
→ [STEP \(.zip\)](#)

Electrical Connection Details

1 With external potentiometer



2 With speed control voltage input



Damage will occur if Vr is connected to GND !

Outputs (to stepper motor):

A+ / A-	Black / Green	Phase A
B- / B+	Red / Blue	Phase B

Note: reversing polarity of A or B will cause the motor to run in the opposite direction

Inputs (to driver):

V+	Supply Voltage	+ 24 V DC (range 10 to 30 V DC)
GND	Ground	GND
ENA ¹	Enable / Disable	Open = enabled / To GND = disabled (motor coils are not energised)
ON / OFF ¹	Run / Stop	Open = run / To GND = stopped (motor is locked with energised coils)
H/L ¹	High / Low Speed	Open = speed 0 to 1900 rpm / To GND = speed 0 to 150 rpm
DIR ^{1,2}	Direction	Open = direction clockwise / To GND = direction anticlockwise
Vr	+ 5 V DC output reference	For use with external potentiometer
SPD	Analogue Speed Input	0 to 5 V DC (resolution 255 steps / 8 bit)

Always start a peristaltic pump at slow to medium speed (less than 300 rpm) to avoid stalling

¹ Inputs are internally pulled up

²Direction is defined as looking at the pump from the front (clockwise means inlet left, outlet right)

Jumpers (reverse side of driver, see diagram on next page):

Speed range can be altered through configuration of the soldered jumpers J1 and J2

J1	J2	High Speed Mode	Low Speed Mode
Open	Open	0 to 1900 rpm	0 to 150 rpm
Short	Open	0 to 480 rpm	0 to 40 rpm
Open	Short	0 to 960 rpm	0 to 80 rpm
Short	Short	0 to 1900 rpm	0 to 150 rpm

J1 Short / J2 Short is as supplied

Current Limiter

The current limiter on the reverse side of the driver is used to reduce motor temperatures. This is especially important when a peristaltic pump is run at slow speed.

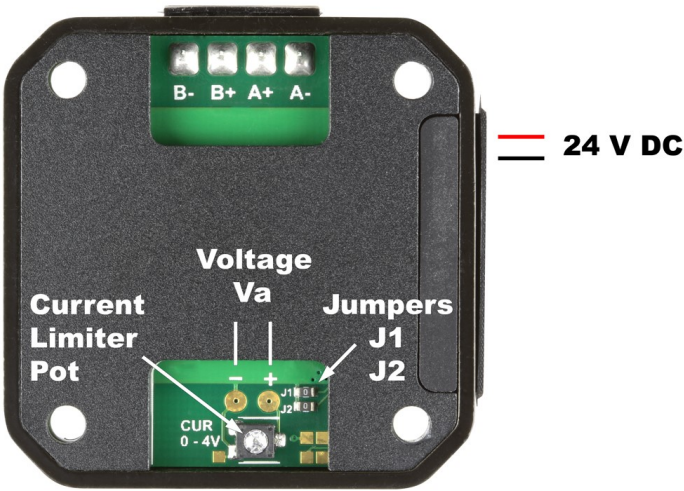
Procedure:

- connect driver to power supply.
- measure voltage Va. Adjust with pot Va as necessary¹.
- clockwise rotation decreases Va.
- disconnect power supply
- re-connect power supply (new Va value is mapped)
- test new setting

¹ Va can be varied between 0 and 4.0 V. It should be reduced until safely above the setting which will cause the motor to stall. Worse case will always be with a new tube with largest ID installed in the peristaltic pump.

Factory settings:

- 2.0 amp driver (A2) = limiter set at 0.9 A (Va = 1.7 V)
4.0 amp driver (A4) = limiter set at 2.8 A (Va = 2.8 V)



Driver / Limiter Recommendation

Peristaltic Pump	Driver / Limiter Setting
9K, 9QQ, 9QX	2.0 amp driver (A2) with limiter set at 0.9 A (Va = 1.7 V)
15KS / 15QQ with Nema 17 motors	2.0 amp driver (A2) with limiter set at 0.9 A (Va = 1.7 V) or higher depending on desired speed / tube ID
15KS / 15QQ with Nema 23 motors	4.0 amp driver (A4) with limiter set at 2.8 A (Va = 2.8 V)
6KP / 6K	4.0 amp driver (A4) with limiter set at 2.8 A (Va = 2.8 V)
25K with < 6.4 mm ID tube	4.0 amp driver (A4) with limiter set at 2.8 A (Va = 2.8 V)
25K with 6.4 and 8.0 mm ID tube	4.0 amp driver (A4) with limiter set at 4.0 A (Va = 4.0 V)

Order Information

Part Number	Description
6900.003	A2 Stepper Driver (model UIM243L02BT)
6900.007	A4 Stepper Driver (model UIM243C04BT)

BOX-it (Webshop for online purchase)

Sample quantities are available for direct online purchase:



→ [BOX-it](#)

All data is representative for initial selection purposes. It is the responsibility of the user to determine suitability for the intended use. Technical changes reserved.