ACE-102

High Voltage/Current Micro-Step Driver

CE RoHS
2002/95/EC

Revision History:
    1.00 – First Revision
    1.01 – Updated AC input specification
    1.02 – Updated product image
    1.03 – Update Dimensions section
    1.04 – Updated pulse frequency spec
    1.05 – Updated peak current spec
    1.07 – Updated Formatting

Table of Contents

1. Introduction

ACE-102 is a high voltage/current microstep driver. It is suitable for motor sizes NEMA 23 and NEMA 34 2-phase bipolar stepper motors. It accepts both DC and AC voltage input.

1.1 Feature Highlights

- 24 to 80 VDC input
- 24 to 60 VAC input
- Max Current: 6.2 A (RMS), 8.7A (Peak)
- Current Settings (RMS): 2.5A, 2.7A, 2.9A, 3.0A, 3.5A, 3.7A, 3.9A, 4.2A, 4.4A, 4.6A, 4.8A, 5.0A, 5.3A, 5.7A, 6.0A, 6.2A
- Micro-step Settings: 1, 2, 4, 5, 8, 10, 16, 20, 25, 32, 40, 50, 64, 80, 100, 200.
- Maximum pulse rate support of 300K pulses/second
- Configurable as one-clock (Pulse/Dir) or two-clock (CW/CCW) operation
- Auto-current reduction (50%) during after idle time of 1.5sec to increase efficiency
- Auto-run feature for testing without a controller. Fixed speed of 30 RPM.
- Opto-isolated differential support for Pulse/Dir or CW/CCW
- Opto-isolated differential enable input
- Alarm LED for open/short and over-temperature conditions
- Auto-shut down for open, short and over-temperature fault conditions

For technical support contact: support@arcus-technology.com
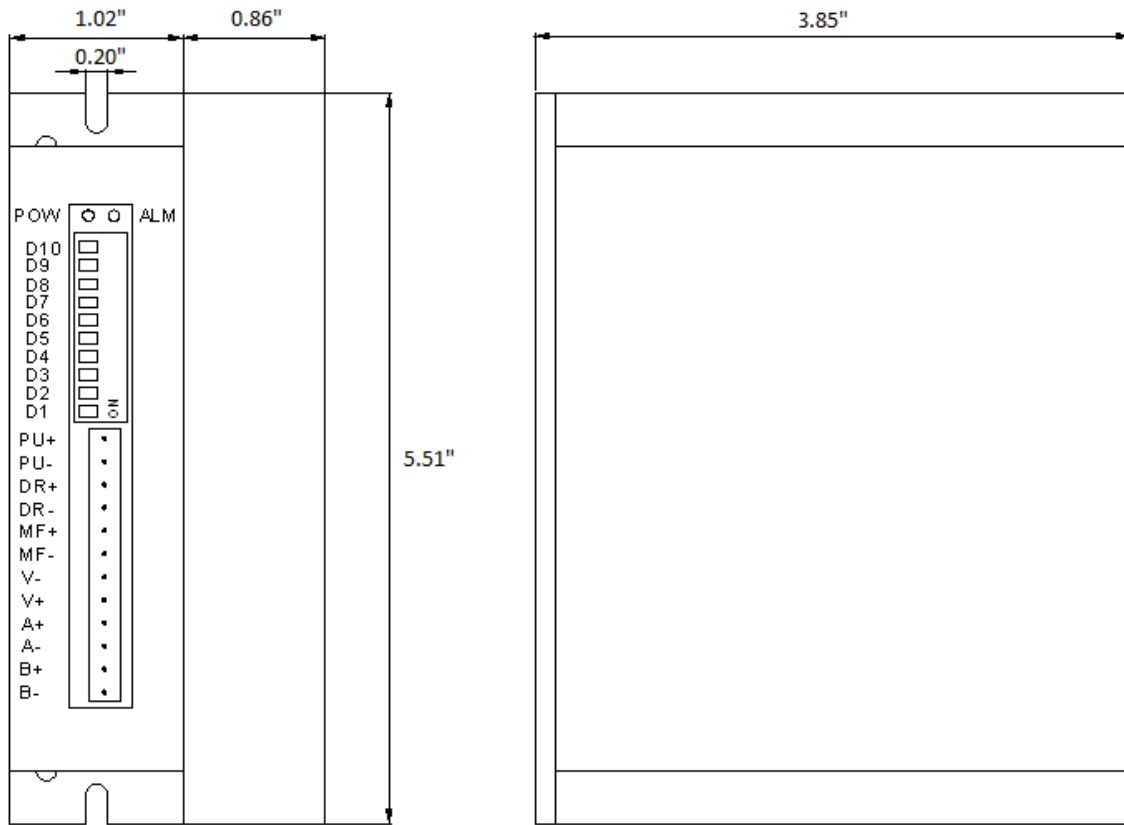Or, contact your local distributor for technical support.

2. Dimensions

Figure 2.0

3. Connectors

In order for ACE-102 to operate, it must be supplied with +12VDC to +24VDC.
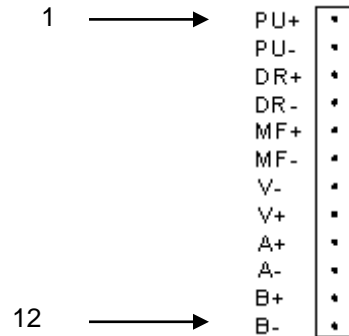Power pins as well as pin outs are shown below.

1 ——→ PU+
PU-
DR+
DR-
MF+
MF-
V-
V+
A+
A-
B+
12 ——→ B-

Figure 3.0

3.1. 12 pin Connector Information

Pin #	Name	Description
1	PUL+	Pulse+ (CW+) Opto-isolated Input
2	PUL-	Pulse- (CW-) Opto-isolated Input
3	DIR+	Dir+ (CCW+) Opto-isolated Input
4	DIR-	Dir- (CCW-) Opto-isolated Input
5	MF+	Enable+ Opto-isolated Input
6	MF-	Enable- Opto-isolated Input
7	V-	GND
8	V+	Driver Power (24-80 VDC)
9	A	Phase A of Bi-polar Step Motor
10	/A	Phase /A of Bi-polar Step Motor
11	B	Phase B of Bi-polar Step Motor
12	/B	Phase /B of Bi-polar Step Motor

Table 3.0

Mating Connector Description: 12 pin 0.2" (5.08mm) connector
Mating Connector Manufacturer: On-Shore
Mating Connector Manufacturer Part: EDZ950/4
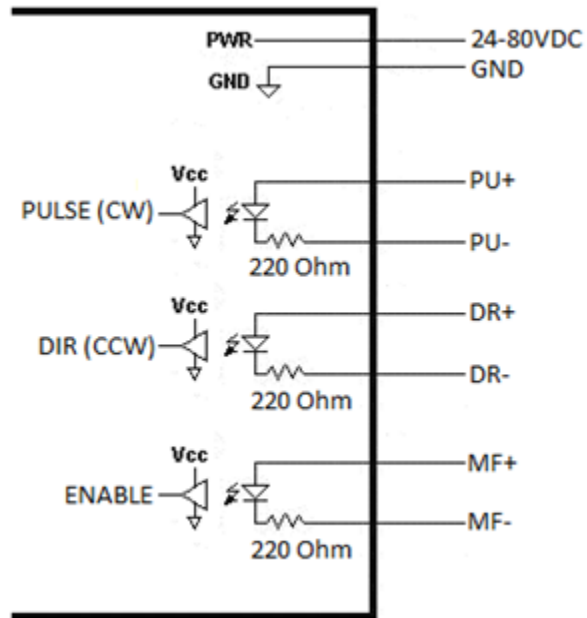
3.2. ACE-102 Interface Circuit

Figure 3.1

3.3. Pulse/Dir/En Inputs

ACE-102 supports both one-clock (Pulse/Dir) or two-clock (CW/CCW) inputs. One-clock uses Pulse signal as the amount of movement and Dir signal as the direction of the movement.
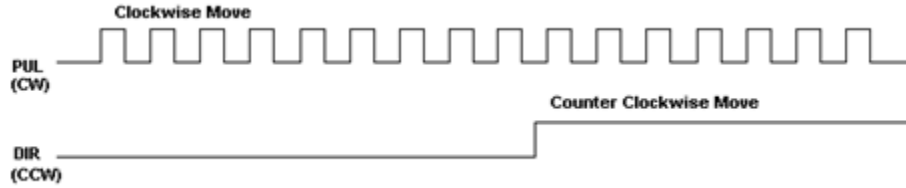
Figure 3.2

Two-clock uses CW as clockwise movement and CCW as counter clockwise movement.
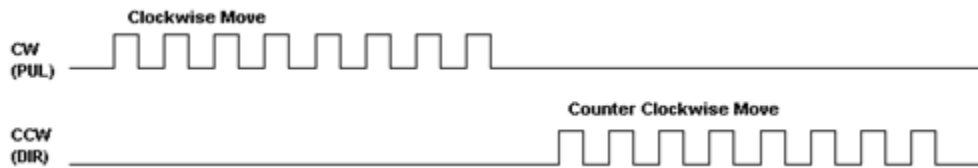
Figure 3.3

Depending on the direction polarity setting, actual direction of the stepper motor rotation can be configured for the application.

Maximum pulse rate support is 300K pulses/second.

Pulse/Dir (CW/CCW)/Ena inputs are opto-isolated differential inputs with 220 Ohm resistor. 5V is recommended. If voltage across is greater than 5V, make sure to add current limiting resistor to limit the current across the diode.

4. Configuration

4.1. Current Setting (RMS Settings)

| Dipswitch	2.5A	2.7A	2.9A	3.0A	3.5A	3.7A	3.9A	4.2A
D1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
D2	OFF	OFF	OFF	OFF	ON	ON	ON	ON
D3	OFF	OFF	ON	ON	OFF	OFF	ON	ON
D4	OFF	ON	OFF	ON	OFF	ON	OFF	ON

Dipswitch	4.4A	4.6A	4.8A	5.0A	5.3A	5.7A	6.0A	6.2A
D1	ON	ON	ON	ON	ON	ON	ON	ON
D2	OFF	OFF	OFF	OFF	ON	ON	ON	ON
D3	OFF	OFF	ON	ON	OFF	OFF	ON	ON
D4	OFF	ON	OFF	ON	OFF	ON	OFF	ON

Table 4.0

4.2. Micro-Step Setting

Dipswitch	1	2	4	5	8	10	16	20
D5	ON	ON	ON	ON	ON	ON	ON	ON
D6	ON	ON	ON	ON	OFF	OFF	OFF	OFF
D7	ON	ON	OFF	OFF	ON	ON	OFF	OFF
D8	ON	OFF	ON	OFF	ON	OFF	ON	OFF

Dipswitch	25	32	40	50	64	80	100	200
D5	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
D6	ON	ON	ON	ON	OFF	OFF	OFF	OFF
D7	ON	ON	OFF	OFF	ON	ON	OFF	OFF
D8	ON	OFF	ON	OFF	ON	OFF	ON	OFF

Table 4.1

4.3. Miscellaneous Settings

Dipswitch	ON	OFF
D9	2 CLK Mode (CW/CCW)	1 CLK Mode (PUL/DIR)
D10	Auto Move On (30RPM)	Auto Move Off

Table 4.2

Contact Information

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The information in this document is believed to be accurate at the time of publication but is subject to change without notice.