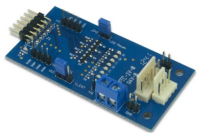

DIGILENT PmodSTEP Four Channel Driver User Manual

Contents

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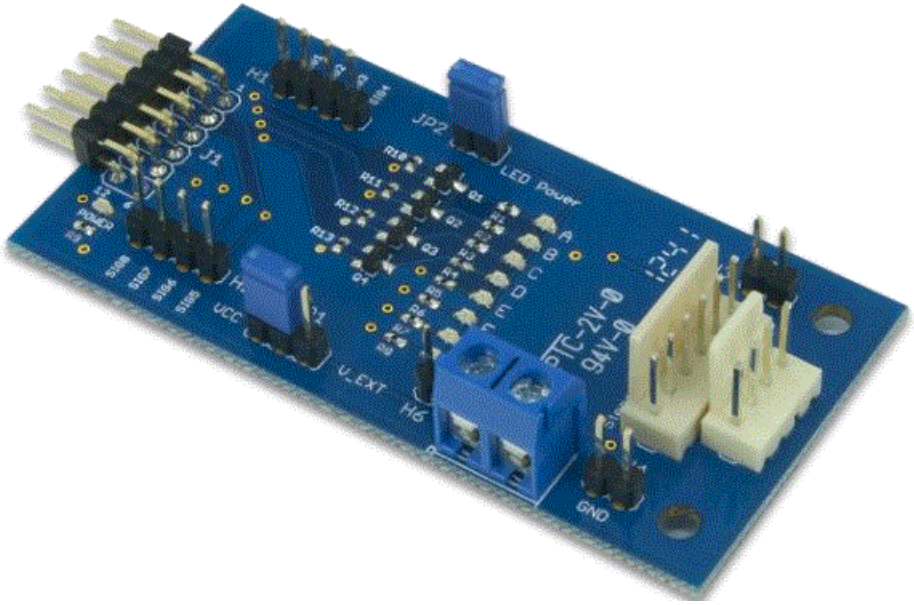

Revised May 24, 2016

This manual applies to the PmodSTEP rev. A

Overview

The PmodSTEP provides a four-channel drive for a stepper motor via the ST L293DD. Users can wire two pairs of channels in series to drive up to 600 mA of current per channel and can view the current status of a GPIO signal through a set of user LEDs.

Features include:

- Follows Digilent Pmod Interface Specification Type 1

Functional Description

The PmodSTEP utilizes ST's four-channel driver, the L293DD, to drive stepper motors at higher currents than a system board can typically provide from their logic outputs. External test point headers and LEDs are provided for easy testing and observation of the propagation of signals.

Interfacing with the Pmod

The PmodSTEP communicates with the host board via the GPIO protocol. This Pmod offers headers for both 4-pin and 6-pin stepper motors. Stepper motors work by alternately energizing the coils to different polarities inducing the stepper motor to rotate. 4-pin stepper motors only work in the bipolar configuration, requiring that the two inputs on each electromagnetic coil are brought to the correct logic level voltages to induce current flow in the correct direction. The 6-pin stepper motor header on this Pmod can be oriented for either bipolar or unipolar configuration. The two extra pins on this header provide two positive power pins as a source of current for when input on one end of a coil is driven to a logic low voltage level.

Pin	Signal	Description
1	SIG1	Signal 1
2	SIG2	Signal 2
3	SIG3	Signal 3
4	SIG4	Signal 4
5	GND	Power Supply Ground
6	VCC	Positive Power Supply
7	SIG5	Signal 5/Output 1 for the Stepper Motor
8	SIG6	Signal 6/Output 2 for the Stepper Motor
9	SIG7	Signal 7/Output 3 for the Stepper Motor
10	SIG8	Signal 8/Output 4 for the Stepper Motor
11	GND	Power Supply Ground
12	VCC	Positive Power Supply

Any external power applied to the PmodSTEP must be within 4.5V and 36V; it is recommended that Pmod is operated at 5V.

Physical Dimensions

The pins on the pin header are spaced 100 mil apart. The PCB is 2.8 inches long on the sides parallel to the pins on the pin header and 1.38 inches long on the sides perpendicular to the pin header.

Overview

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Features include

- Stepper motor driver for 4 and 6-pin motors
- Can drive both motors simultaneously
- Multiple LEDs to indicate signal propagation
- Jumper for optional external power
- Small PCB size for flexible designs 2.8“ × 1.3” (7.1 cm × 3.3 cm)
- 2×6-pin Pmod connector with GPIO interface
- Follows Digilent Pmod Interface Specification Type 1

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Table 1. Pinout description table.

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Documents / Resources

	DIGILENT PmodSTEP Four Channel Driver [pdf] User Manual PmodSTEP Four Channel Driver, PmodSTEP, Four Channel Driver, Driver

References

- Digilent â€“ Start Smart, Build Brilliant.