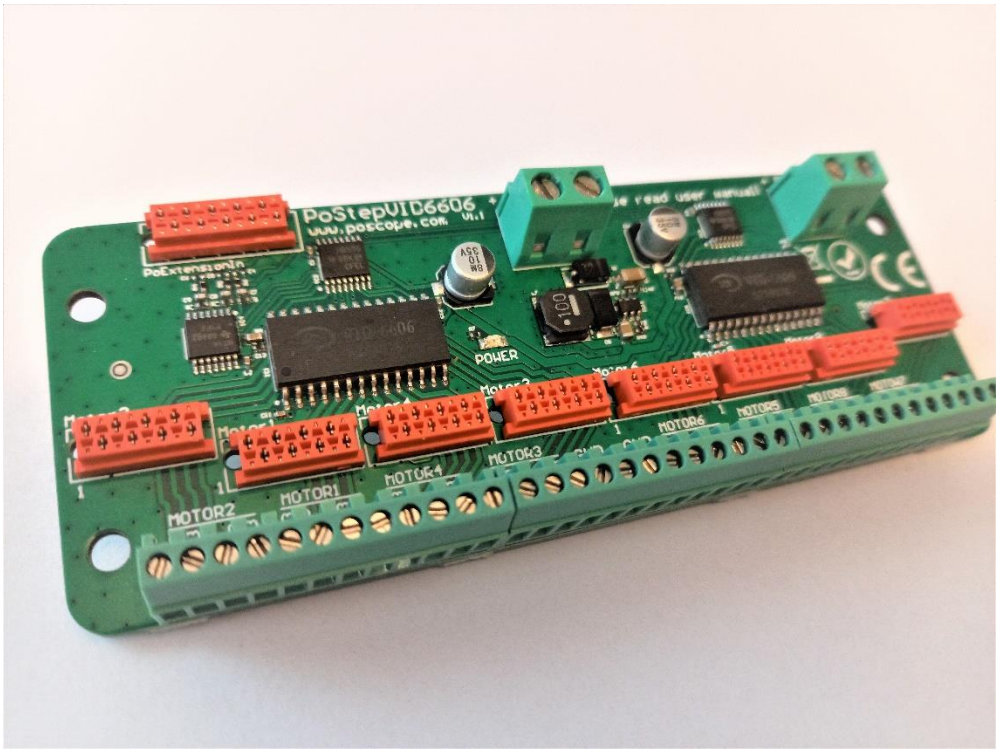
PoLabs

PoStepVID6606

User's manual

V1.0



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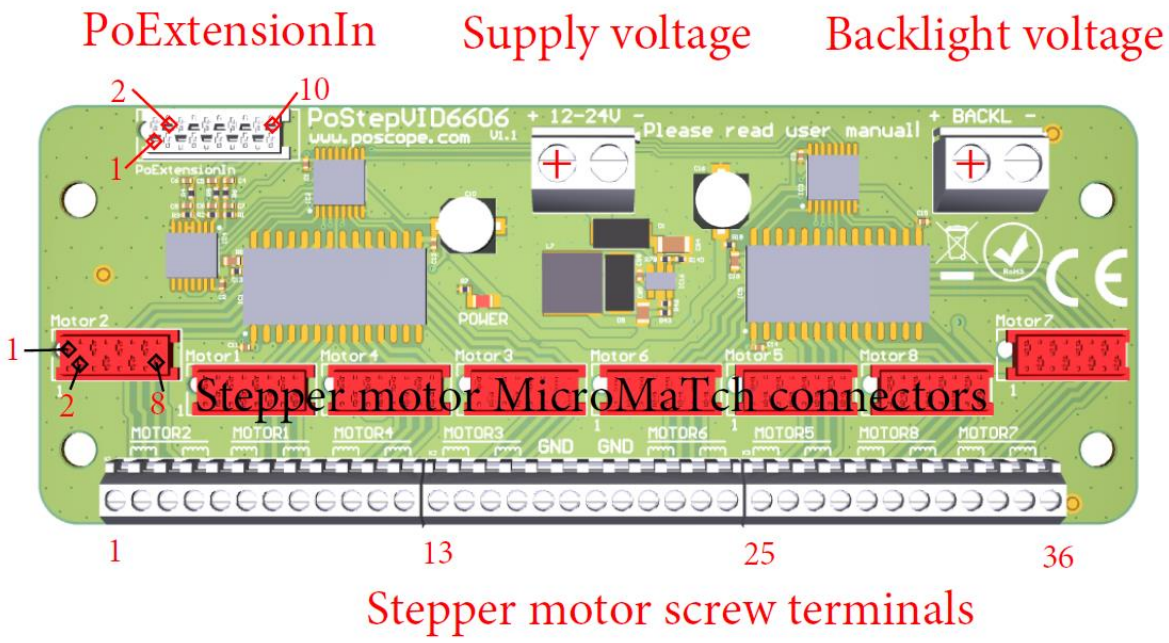
1 Introduction

PoStepVID6606 board contains two driver chips VID6606 and so allows the user to drive up to eight miniature stepper motors with current up to 35mA. Device uses a simple serial bus protocol. Along with a PoKeys57U or PoKeys57E device, the board is a great choice when building a flight or other simulators with instrumental display panels. The driver uses a simple serial communication protocol and is also suitable for any other development board with a built-in microprocessor.

2 Features

- 8 stepper motor outputs (two VID6606)
- Simple serial bus for Step and Direction signals
- Screw terminals
- Additional Micro-MaTch connector with backlight lamp voltage distribution

3 Connectors and pinout



3.1 PoExtensionIn

Pin	Function
1	-
2	GND
3-7	-
8	Data signal (SER)
9	Data signal (SCK)
10	Data signal (RCK)

3.2 Supply voltage

Pin	Power supply
1	From +12 to +24V DC
2	GND

3.3 Backlight supply voltage

Backlight voltage is distributed only to the Micro-MaTch stepper motor terminals, and no internal electronics are used. Use the appropriate external voltage for the backlight.

Pin	Backlight supply	
1	+	Max 500mA (dc or ac voltage)
2	-	

3.4 Stepper motor screw terminals

Motor	Motor coils connection			
	Coil A		Coil B	
1	Pin 5	Pin 6	Pin 7	Pin 8
2	Pin 1	Pin 2	Pin 3	Pin 4
3	Pin 13	Pin 14	Pin 15	Pin 16
4	Pin 9	Pin 10	Pin 11	Pin 12
5	Pin 25	Pin 26	Pin 27	Pin 28
6	Pin 21	Pin 22	Pin 23	Pin 24
7	Pin 33	Pin 34	Pin 35	Pin 36
8	Pin 29	Pin 30	Pin 31	Pin 32
GND	Pin 17… Pin 20			

3.5 Stepper motor Micro-MaTch connectors

Pin	Motor1 … Motor8	
1	Backlight +	
2	Backlight -	
3	Backlight +	
4	Backlight -	
5	A1	Coil A
6	A2	
7	B1	Coil B
8	B2	

4 PoStepVID6606 and PoKeys

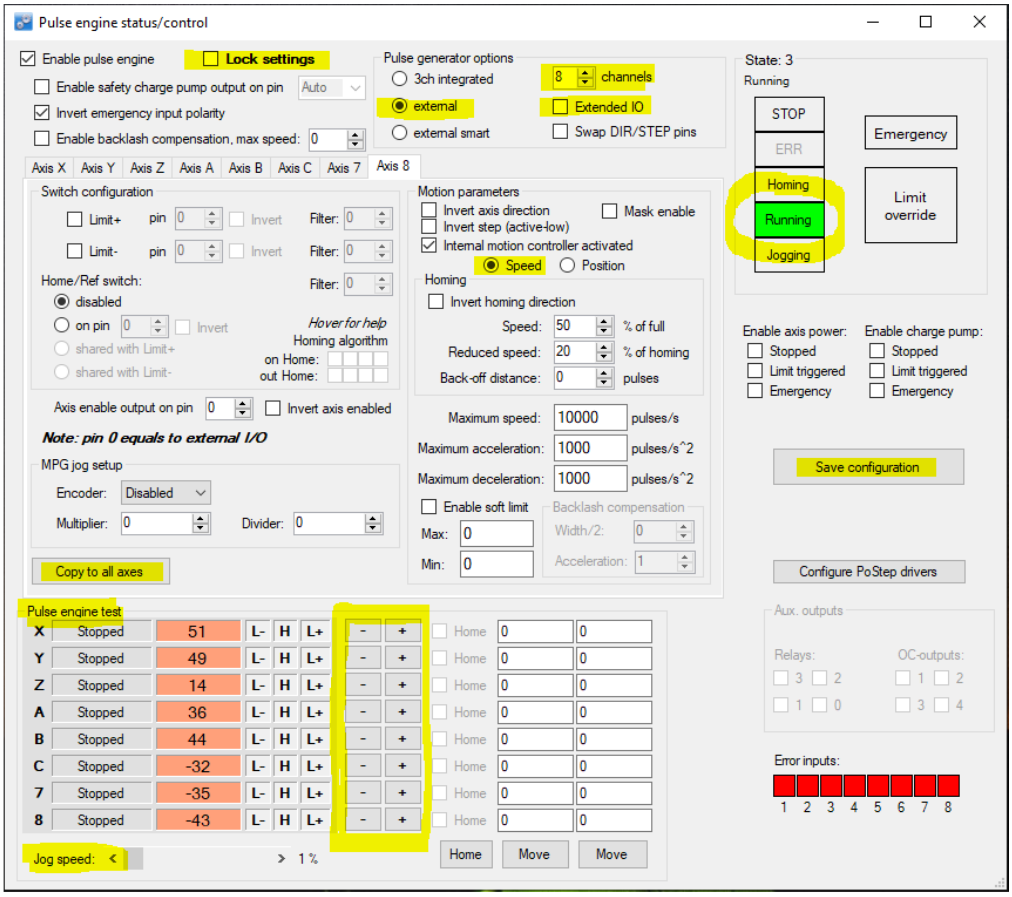
PoStepVID6606 is shipped with the cable attached to the PoExtensionIn. To use device together with PoKeys57E/PoKeys57U, connect the flat cable to the appropriate pins of PoKeys57E/57U device as shown below. PoStepVID6606 uses 3 input pins and GND to communicate with master device.

PoExtensionIn Pin	Description	PoKeys57U Pin	PoKeys57E Pin
2	Ground	GND	GND
8	Data signal (SER)	23	9
9	Data signal (SCK)	25	11
10	Data signal (RCK)	26	51

Run PoKeys application, open Pulse engine settings and follow these steps:

- Release the settings lock by clicking ‘Lock settings’. The dialog will be asking you whether you want to load default settings. Confirm with ‘Yes’
- Select ‘External’ in Pulse engine generator options and uncheck the ‘Extended IO’ check box
- Select 8 channels in Pulse engine generator options
- Under ‘Motions parameter’ choose ‘Speed’
- Click ‘Copy to all axes’
- Click ‘Save configuration’

To test the operation of the device, switch Pulse engine into ‘Running’ mode (by clicking ‘Running’ button) and use the +/-jogging buttons for the target axis in ‘Pulse engine test’ section. The default jog speed is 1 % of the maximum speed use the slider at the bottom to adjust the jogging speed.

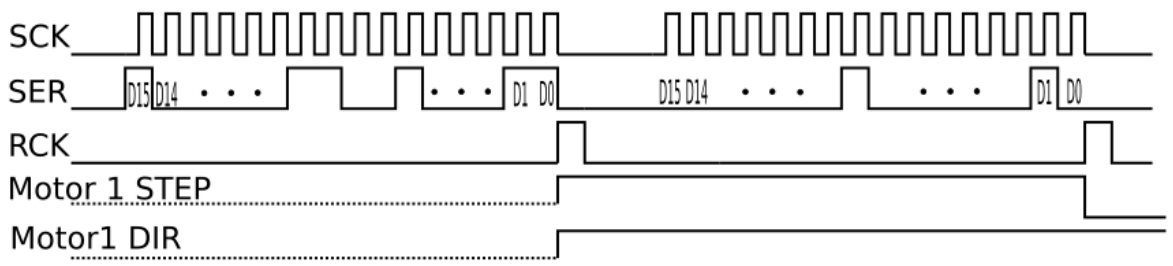


5 Serial protocol - step/direction signals

The PoStepVID6606's digital TTL data input levels are +3.3V and +5V compatible. The serial data length is 16-bit and contains step and direction signal for 8 motor driver inputs. Data is organized as follows:

D15	D14	D13	D12		D3	D2	D1	D0
Motor 8		Motor 7		…	Motor 2		Motor 1	
Dir	Step	Dir	Step		Dir	Step	Dir	Step

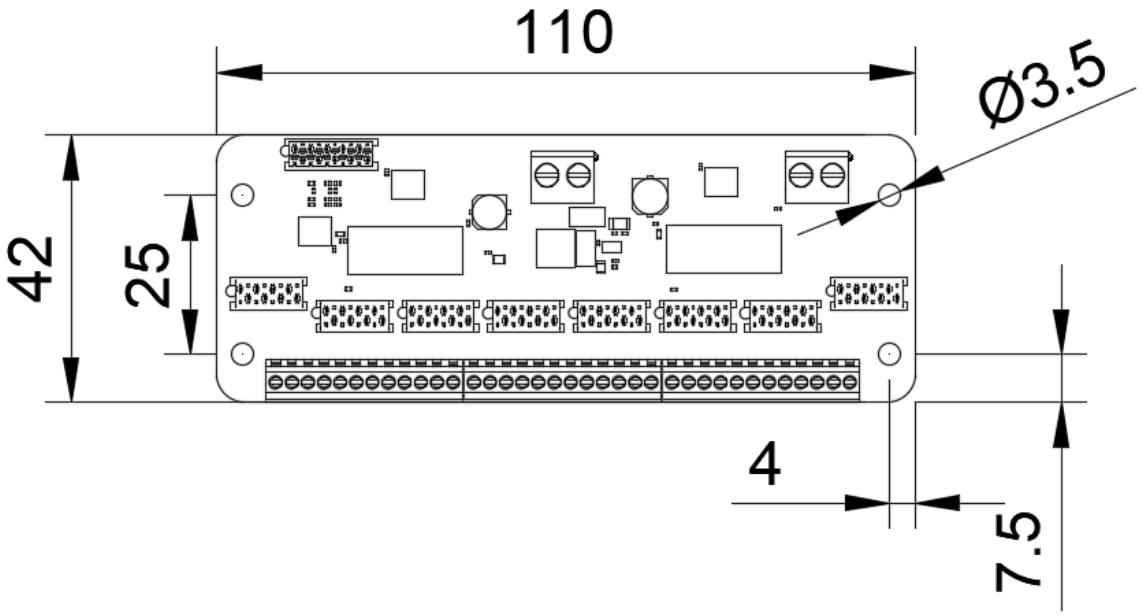
Most significant bit (MSb) must be sent first! Step/Direction outputs are latched at rising edge of the signal RCK. Driver VID6606 can operate with step signals frequency up to 1MHz. Two 16-bit data package must be sent to generate single step pulse signal.



Serial data- timing diagram

6 Technical specifications

- Supply voltage 12-24 V_{DC}
- Power consumption max 2.5 W
- Data inputs signal TTL 3.3 V ÷ 5 V
- Serial bus f_{max} 30 MHz
- Motor coil current max (I_{coil}) 35 mA
- Driver step/direction signals f_{max} 500kHz
- Working temperature -20 °C ÷ +80 °C
- Weight 40g
- Mechanical dimensions [mm]



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