

Linear Actuator jrk Motor Controller(pololu)

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Glideforce LACT12P-12V-05 Light-Duty Linear Actuator with



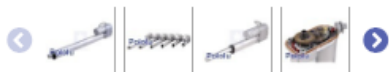
Pololu item #: 2327 **10** in stock
Brand: [Concentric](#)

Price break	Unit price (US\$)
1	129.95
5	123.45

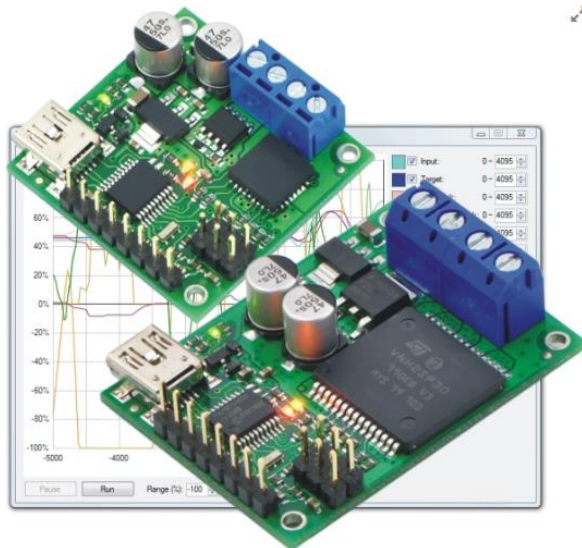
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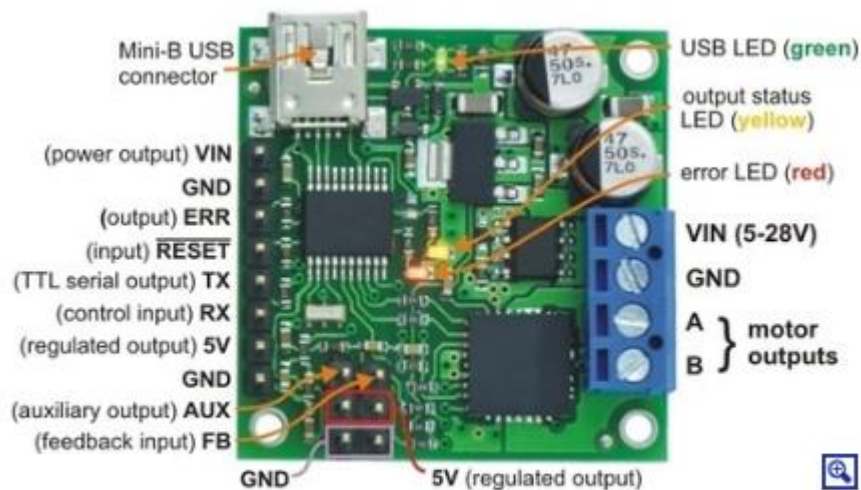
Connecting a linear actuator with feedback to a jrk 21v3 motor controller.



Pololu jrk 21v3 and 12v12 USB motor controllers with feedback.

<https://www.pololu.com/product/2327>

<https://www.pololu.com/product/1394>



Pololu jrk 21v3 USB motor controller with feedback, labeled top view.

jrk software install

<https://www.pololu.com/docs/0J38/3.a> - install manual

1. Download the [jrk drivers and configuration software](#) (5MB zip)
2. Open the ZIP archive and run *setup.exe*. If the installer fails, you may have to extract all the files to a temporary directory, right click *setup.exe*, and select "Run as administrator". The installer will guide you through the steps required to install the Pololu Jrk Configuration Utility, the jrk command-line utility (JrkCmd), and the jrk drivers on your computer.
3. During the installation, Windows will ask you if you want to install the drivers. Click "Install" (Windows 10, 8, 7, and Vista) or "Continue Anyway" (Windows XP).



jrkl Configuration utility initialize

<https://www.pololu.com/product/2327>

jrkl configuration utility Program Setup

1. If you have not already, read through the [Jrkl G2 Motor Controllers User's Guide](#) and download its drivers and configuration software.
2. Before connecting power and your actuator to your Jrkl, confirm that it is working by connecting your Jrkl to a PC with a USB cable and launch the configuration utility. The red LED should be on, and the green LED should be flickering quickly.
3. Download the appropriate settings file for your linear actuator:
 - for versions with the 5:1 gear ratio: [Jrkl 21v3 settings file for use with LACTxP-12V-5](#) (2k txt)
 - for versions with 10:1 or 20:1 gear ratios: [Jrkl 21v3 settings file for use with LACTxP-12V-10 or LACTxP-12V-20](#) (2k txt)

Setup file

Note: These same settings files will work also with the Jrkl G2 24v13 if you open them with a text editor and change the "product" field near the top from "21v3" to "24v13".

4. In the configuration utility, choose File → Open settings file (Ctrl + O), and navigate to the location of the settings file you downloaded in step 3.
5. Click on the PID tab of the configuration utility and verify that the proportional and derivative coefficients are not zero. If they are zero, the settings file was probably not loaded properly and you should try performing the previous step again.
6. Click "Apply settings".
7. With your power supply off and USB disconnected, connect your linear actuator to your Jrkl using the connections shown in the picture above.
8. Turn on power, plug in USB, and reconnect to the configuration utility (use the "Connected to" drop down box if the configuration utility doesn't automatically reconnect to your Jrkl).
9. On the Status tab, move the slider around to change the target position and get your actuator to move the target position.
10. The settings in these files should work fairly well with any length Glideforce light-duty actuator that has a feedback potentiometer (model LACTxP-12V). However, to ensure you can control your actuator across its full stroke, you should recalibrate the feedback. Instructions for doing this can be found in the [analog feedback section of the Jrkl G2 User's Guide](#).

jrkl Configuration utility initialize

Pololu Jrkl Configuration Utility

File Edit Window Help

Connected to: #00215472

Target: 0

PID period count: 348

☒ Stop

Firmware version: 1.3

Scaled Feedback: 0

PID period exceeded: No

Errors:

Input Feedback PID Motor Errors

Input mode: Serial

Analog to digital conversion

Analog samples: 128

☐ Detect disconnect with AUX

Serial interface

☐ USB Dual Port

☐ USB Chained

☐ UART, detect baud rate

☒ UART, fixed baud rate: 9600

☐ Enable CRC

Device Number: 11

Timeout (s): 0.00

☐ Never sleep (ignore USB suspend)

Scaling (Analog and Pulse Width mode only)

☐ Invert input direction

Input Target

Absolute Max: 4095

Maximum: 4095

Neutral Max: 2048

Neutral Min: 2048

Minimum: 0

Absolute Min: 0

Asymmetric

Degree: 1 - Linear

Input

Pololu Jrkl Configuration Utility

File Edit Window Help

Connected to: #00215472

Target: 0

PID period count: 1479

☒ Stop motor

Firmware version: 1.3

Scaled Feedback: 0

PID period exceeded: No

Errors: 0x0003

Input Feedback PID Motor Errors

Feedback mode: Analog voltage

Scaling (Analog and Tachometer mode only)

☐ Invert feedback direction

Calibration

Absolute Max: 4030

Maximum: 3965

Minimum: 131

Absolute Min: 66

Learn...

Reset to full range

Analog to digital conversion

Analog samples: 1024

☐ Detect disconnect with AUX

Feedback

Pololu Jrkl Configuration Utility

File Edit Window Help

Connected to: #00215472

Target: 0

PID period count: 1479

☒ Stop motor

Firmware version: 1.3

Scaled Feedback: 0

PID period exceeded: No

Errors: 0x0003

Input Feedback PID Motor Errors

Proportional Coefficient

10

0

2

=

10.00000

Integral Coefficient

819

13

2

=

0.09998

Derivative Coefficient

7

0

2

=

7.00000

PID period (ms): 30

Integral limit: 6000

☐ Reset integral when proportional term exceeds max duty cycle

Feedback dead zone: 3

PID

Pololu Jrkl Configuration Utility

File Edit Window Help

Connected to: #00215472

Target: 0

PID period count: 1860

☒ Stop motor

Firmware version: 1.3

Scaled Feedback: 0

PID period exceeded: No

Errors: 0x0003

Input Feedback PID Motor Errors

PWM frequency: 20 kHz

☐ Invert motor direction

Detect Motor Direction

Asymmetric

Forward Reverse

Max, duty cycle: 600

Max, acceleration: 600

Brake duration (ms): 0

Max, current (A): 0,000

Current calibration: 1

Max, duty cycle while feedback is out of range: 600

When motor is off: ☒ Brake ☐ Coast

Motor

Pololu Jrkl Configuration Utility

File Edit Window Help

Connected to: #00215472

Target: 0

PID period count: 2185

☒ Stop motor

Firmware version: 1.3

Scaled Feedback: 0

PID period exceeded: No

Errors: 0x0003

Input Feedback PID Motor Errors

Bit mask	Error	Setting	Currently stopping motor?	Occurrence count
0x0001	Awaiting command	<input checked="" type="radio"/> Enabled and latched	Yes	1
0x0002	No power	<input checked="" type="radio"/> Enabled <input type="radio"/> Enabled and latched	Yes	2135
0x0004	Motor driver error	<input checked="" type="radio"/> Enabled <input type="radio"/> Enabled and latched	No	0
0x0008	Input invalid	<input checked="" type="radio"/> Enabled <input type="radio"/> Enabled and latched	No	0
0x0010	Input disconnect	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled <input type="radio"/> Enabled and latched	No	0
0x0020	Feedback disconnect	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled <input type="radio"/> Enabled and latched	No	0
0x0040	Max, current exceeded	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled <input type="radio"/> Enabled and latched	No	0
0x0080	Serial signal error	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled <input type="radio"/> Enabled and latched	No	0
0x0100	Serial overrun	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled <input type="radio"/> Enabled and latched	No	0
0x0200	Serial RX buffer full	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled <input type="radio"/> Enabled and latched	No	0
0x0400	Serial CRC error	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled <input type="radio"/> Enabled and latched	No	0
0x0800	Serial protocol error	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled <input type="radio"/> Enabled and latched	No	0
0x1000	Serial timeout error	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled <input type="radio"/> Enabled and latched	No	0

Clear Errors

Reset counts

Errors

HRVL (Human-centered Robotics & Vision Lab)

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Jrk configuration utility

<https://www.pololu.com/docs/0J38/3> (Manual)

Pololu Jrk Configuration Utility

File Edit Window Help

Connected to: Not Connected Target: N/A PID period count: N/A ☐ Stop motor
 Scaled Feedback: N/A PID period exceeded: N/A Errors: N/A

Input Feedback PID Motor Errors

Input mode:

Analog to digital conversion

Analog samples:

☐ Detect disconnect with AUX

Serial interface

☒ USB Dual Port

☐ USB Chained

☐ UART, detect baud rate

☐ UART, fixed baud rate: 115200

☐ Enable CRC

Device Number: 11

Timeout (s): 0.00

☐ Never sleep (ignore USB suspend)

Scaling (Analog and Pulse Width mode only)

☐ Invert input direction Learn...

Input	Target
Absolute Max: 4095	
Maximum: 4095	4095
Neutral Max: 2048	2048
Neutral Min: 2048	2048
Minimum: 0	0
Absolute Min: 0	

☐ Asymmetric

Dead Zone: 0

Degree:

Manually set target (Serial mode only)

< 2048 >

0 2048 4095

Set Target

☐ Automatically set target

Reload settings from device Stop Motor Run Motor Apply settings to device

Pololu Jrk Configuration Utility

File Edit Window Help

Connected to: #00215472 Target: 2009 PID period count: 2113 ☐ Stop motor
 Firmware version: 1.3 Scaled Feedback: 0 PID period exceeded: No Errors: 0x0000

Input Feedback PID Motor Errors

Input mode: Serial

Analog to digital conversion

Analog samples: 128 ☐ Detect disconnect with AUX

Serial interface

☐ USB Dual Port
☐ USB Chained
☒ UART, detect baud rate
☐ UART, fixed baud rate: 9600

☐ Enable CRC

Device Number: 11

Timeout (s): 0.00

☐ Never sleep (ignore USB suspend)

Scaling (Analog and Pulse Width mode only)

☐ Invert input direction Learn...

Reset to full range

Input	Target
Absolute Max: 4095	
Maximum: 4095	4095
Neutral Max: 2048	2048 <input type="checkbox"/> Asymmetric
Neutral Min: 2048	
Minimum: 0	0
Absolute Min: 0	

Degree: 1 - Linear

Dead Zone: 0

Manually set target (Serial mode only)

0 2048 4095

Set Target

☐ Automatically set target

Reload settings from device Stop Motor Run Motor Apply settings to device

Jrk configuration utility

Pololu Jrk Configuration Utility

File Edit Window Help

Connected to: #00215472 Target: 2009 PID period count: 3510 ☐ Stop motor
 Firmware version: 1.3 Scaled Feedback: 0 PID period exceeded: No Errors: 0x0000

Input Feedback PID Motor Errors

Feedback mode: (None)

Scaling (Analog and Tachometer mode only)

☐ Invert feedback direction Learn...

Calibration

Absolute Max: 4095
 Maximum: 4095
 Minimum: 1
 Absolute Min: 1

Reset to full range

Analog to digital conversion

Analog samples: 128

☐ Detect disconnect with AUX

Reload settings from device Stop Motor Run Motor Apply settings to device

Jrk configuration utility

Pololu Jrk Configuration Utility

File Edit Window Help

Connected to: #00215472 Target: 2009 PID period count: 4700 ☐ Stop motor
 Firmware version: 1,3 Scaled Feedback: 0 PID period exceeded: No Errors: 0x0000

Input Feedback **PID** Motor Errors

Proportional Coefficient

$$\frac{7}{2} = 1,75000$$

Integral Coefficient

$$\frac{0}{3} = 0,00000$$

Derivative Coefficient

$$\frac{0}{0} = 0,00000$$

PID period (ms): 10

Integral limit: 1000

☐ Reset integral when proportional term exceeds max duty cycle

Feedback dead zone: 0

Reload settings from device Stop Motor Run Motor Apply settings to device

Pololu Jrk Configuration Utility

File Edit Window Help

Connected to: #00215472 Target: 2009 PID period count: 6133 ☐ Stop motor
 Firmware version: 1.3 Scaled Feedback: 0 PID period exceeded: No Errors: 0x0000

Input Feedback PID **Motor** Errors

PWM frequency: 20 kHz

☐ Invert motor direction Detect Motor Direction


☐ Asymmetric

	Forward	Reverse	
Max. duty cycle:	200	200	(600 means 100%)
Max. acceleration:	600	600	(600 means no limit)
Brake duration (ms):	0	0	
Max. current (A):	2,997	2,997	(0,000 means no limit)
Current calibration:	37	37	

Max. duty cycle while feedback is out of range: 600 (600 means 100%)

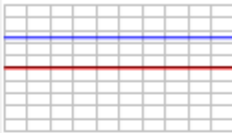
When motor is off: ☒ Brake ☐ Coast

Reload settings from device Stop Motor Run Motor Apply settings to device


Pololu Jrk Configuration Utility
— □ ×

File Edit Window Help

Connected to: #00215472 Target: 2009 PID period count: 7435 ☐ Stop motor
 Firmware version: 1,3 Scaled Feedback: 0 PID period exceeded: No Errors: 0x0000



Input Feedback PID Motor Errors

Bit mask	Error	Setting			Currently stopping motor?	Occurrence count
0x0001	Awaiting command		<input checked="" type="radio"/> Enabled and latched		No	4
0x0002	No power	<input checked="" type="radio"/> Enabled	<input type="radio"/> Enabled and latched		No	0
0x0004	Motor driver error	<input checked="" type="radio"/> Enabled	<input type="radio"/> Enabled and latched		No	1
0x0008	Input invalid	<input checked="" type="radio"/> Enabled	<input type="radio"/> Enabled and latched		No	0
0x0010	Input disconnect	<input checked="" type="radio"/> Disabled	<input type="radio"/> Enabled	<input type="radio"/> Enabled and latched	No	0
0x0020	Feedback disconnect	<input checked="" type="radio"/> Disabled	<input type="radio"/> Enabled	<input type="radio"/> Enabled and latched	No	0
0x0040	Max. current exceeded	<input checked="" type="radio"/> Disabled	<input type="radio"/> Enabled	<input type="radio"/> Enabled and latched	No	0
0x0080	Serial signal error	<input checked="" type="radio"/> Disabled	<input type="radio"/> Enabled and latched		No	582
0x0100	Serial overrun	<input checked="" type="radio"/> Disabled	<input type="radio"/> Enabled and latched		No	0
0x0200	Serial RX buffer full	<input checked="" type="radio"/> Disabled	<input type="radio"/> Enabled and latched		No	0
0x0400	Serial CRC error	<input checked="" type="radio"/> Disabled	<input type="radio"/> Enabled and latched		No	0
0x0800	Serial protocol error	<input checked="" type="radio"/> Disabled	<input type="radio"/> Enabled and latched		No	349
0x1000	Serial timeout error	<input checked="" type="radio"/> Disabled	<input type="radio"/> Enabled and latched		No	0

Clear Errors
Reset counts

Reload settings from device
Stop Motor
Run Motor
Apply settings to device