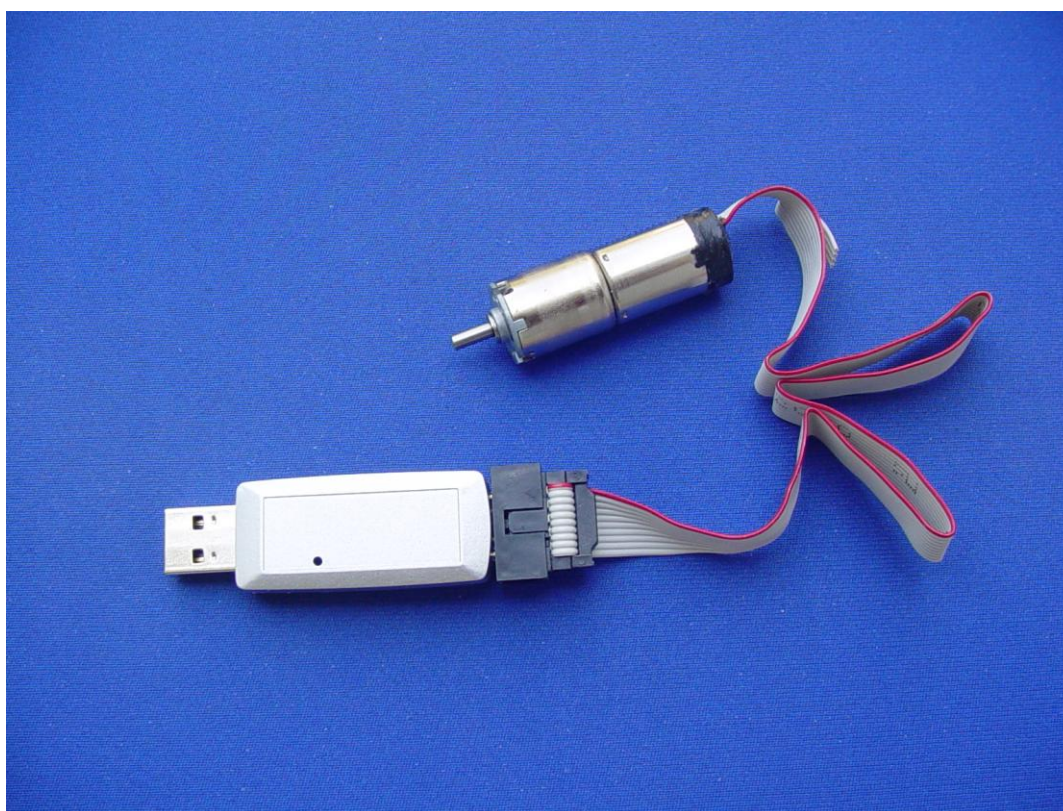




QUICK START

USS-210

Miniaturized USB Stick Controller and Driver
for small Stepper motors



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The **USS-210** is a single axis miniaturized controller and driver for small Stepper motors used typically in precision positioning systems.

It is powered directly from the **USB** port with no additional power supply needed.

Its intended use is for **3-6V** up to **12V DC** Stepper motors with maximum **200mA** current consumption.

The **USS-210** controller can be used alone or in conjunction with up to 8 more **USS-210** controllers allowing the control of up to 9 axis from one PC.

The **USS-210** provides position, velocity, torque and acceleration control. It doesn't have a **Commands List** but a modified version could be developed.

The user has 2 programs to communicate with the controllers via the USB port(s). We are offering a **Visual Basic** and **LabView** interface examples. Both of them have the source code available to the user.

To avoid any hardware conflicts you must specify at the time of purchase how many USS-210 controllers will be connected simultaneous to the same PC.

The **USS-210** has no accessories. If needed the User can purchase:

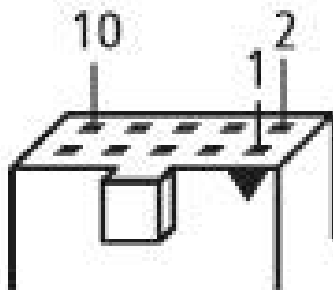
- USB extension cables type A
- 10pin IDC ribbon cables.

Connections

The USB connector is standard male type A and will match the Windows or Apple PCs.

Motor Connections

The **USS-210** Stepper controller output is using a 10-pin IDC connector MALE type. The mating connector on the motor side must use the following pin-out scheme:

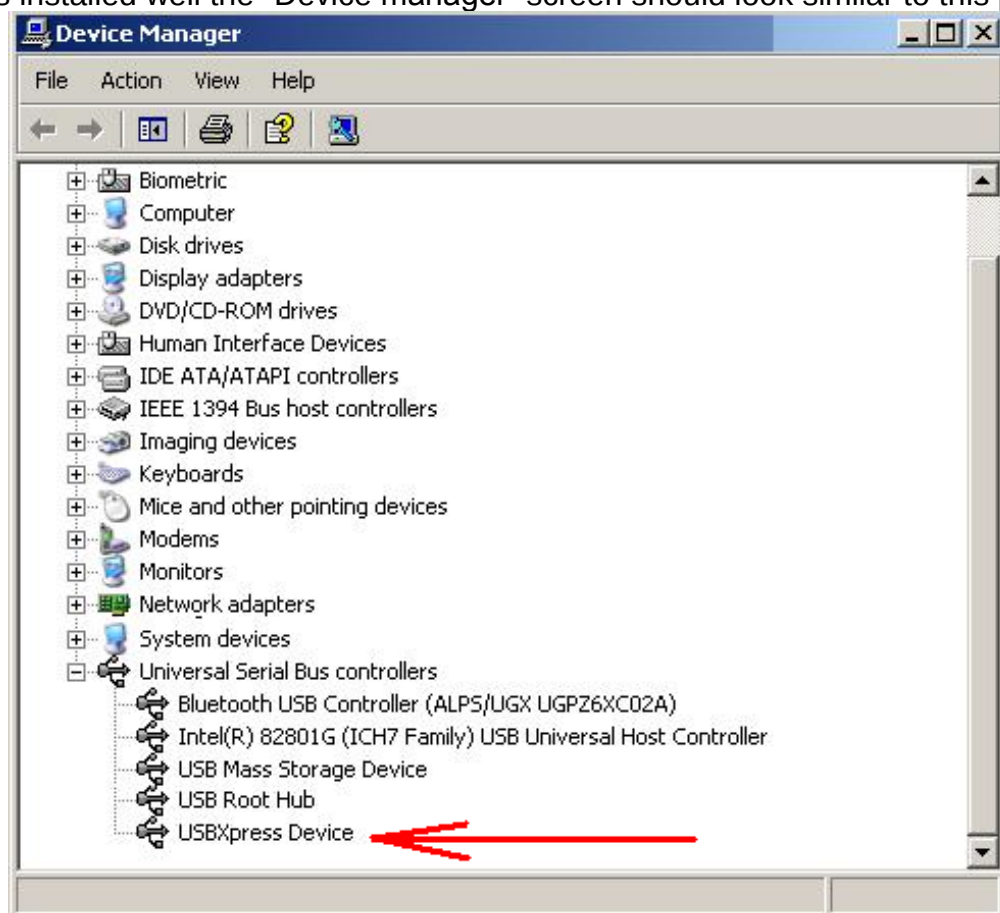


10 Pin IDC Connector – Pin Assignment

Pin	Signal
1	Phase A1
2	+5 DC (used for Limit switches)
3	Phase B1
4	Phase B2
5	GND
6	Phase A2
7	GND or NC
8	Positive Limit Switch
9	Negative Limit Switch
10	Limit GND

USB Driver

The **USB** driver needs to be installed before the use of the **USS-210** stick. Plug the controller in any available **USB** port and the PC will detect the presence of the new **USB** device. Then point the installation wizard to the USB driver files we provided and wait for the PC to complete the driver installation. If all was installed well the “Device manager” screen should look similar to this picture.



DEMO Programs

A **DEMO** program is provided for immediate operation. It can be used as is or the user can alter them to make his own interface or to control multiple axis simultaneous.

Features

Joystick

A Joystick slider in the GUI is used to change continuously the speed of the motor in both directions.

Reverse Motor Direction

Reverse motor direction feature allows the user to change the motor polarity. This allows configuring the motor's turning direction while keeping the same counting direction as before.

Limit Switches Configuration

Limit switches can be connected so that the stop condition is a logic low signal (GROUND) or a logic high signal (+5Volts). Both switches must have the same configuration (either active on high, or active on low). The 'Active High' or 'Active Low' configuration can be changed directly from the user interface. Limit switches functionalities can be reversed (swapped) between each other from the user interface.

Installation and first time Operation

Install the DEMO program we provided.

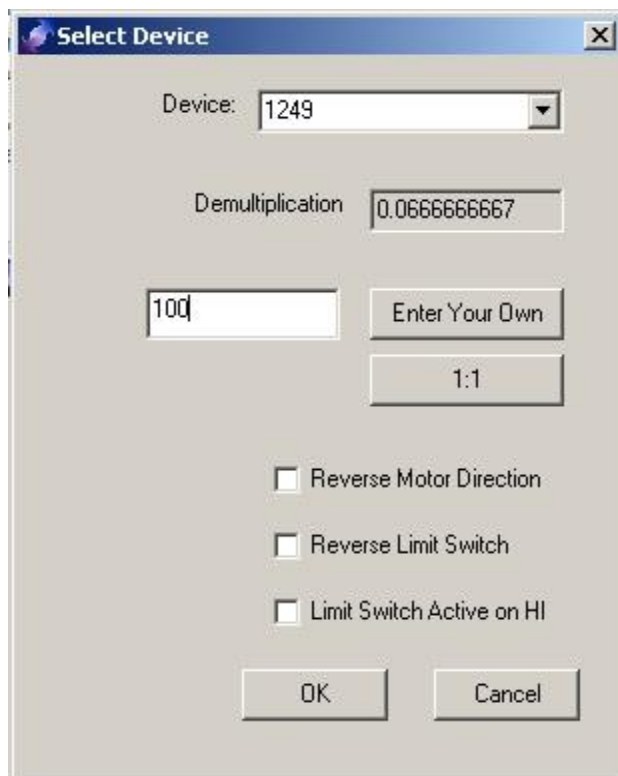
The motor should be generally connected to the controller before the USB controller is plugged in the USB port in the PC.

Start the USB Test DEMO program.

When you start the Visual Basic Demo application, the **Select Device** window pops up.

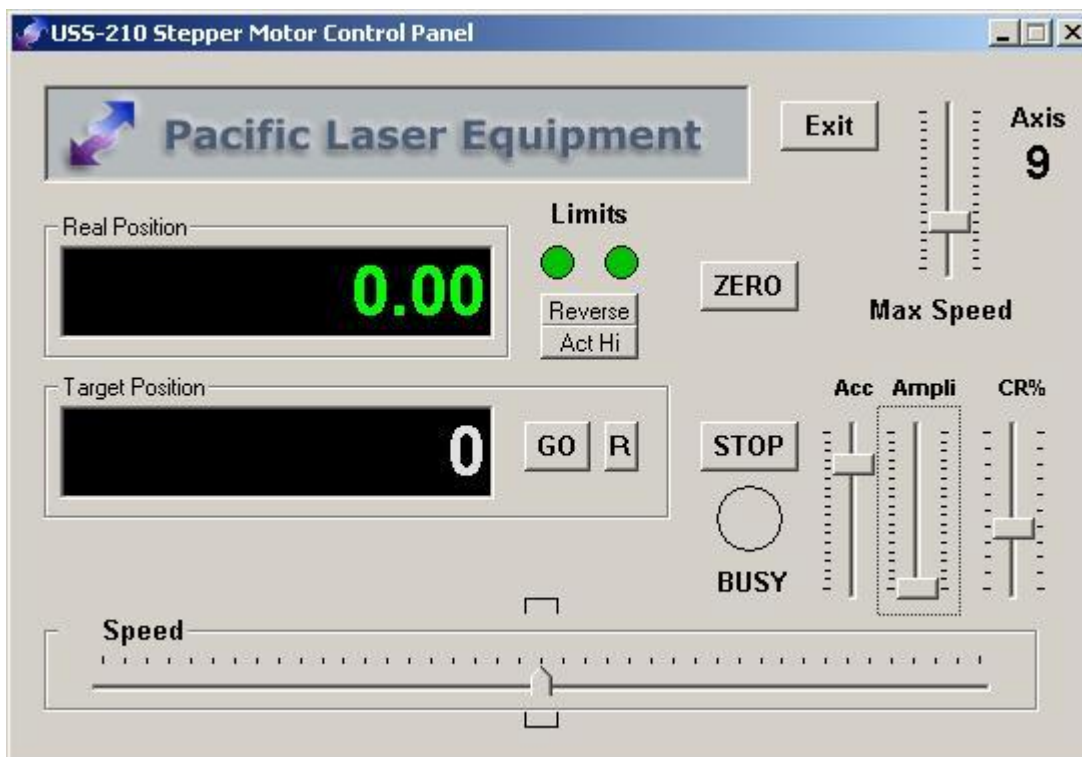
ATTENTION:

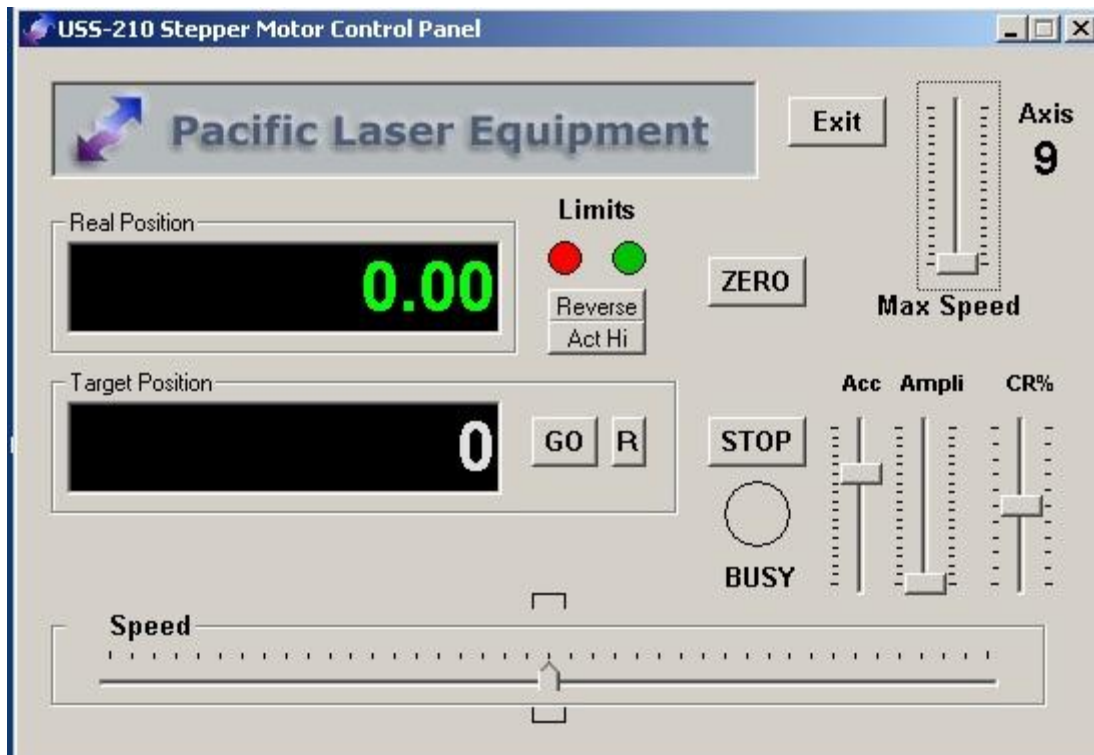
Changes in the Settings window may not be good for your application.



Click the **OK** button.

If all is well then the following **USS-210** Stepper Motor Control Panel window will open.





Please note that the vertical sliders have the max. value when down and Min. value up.

Set the Max Speed at $\frac{1}{2}$ way.

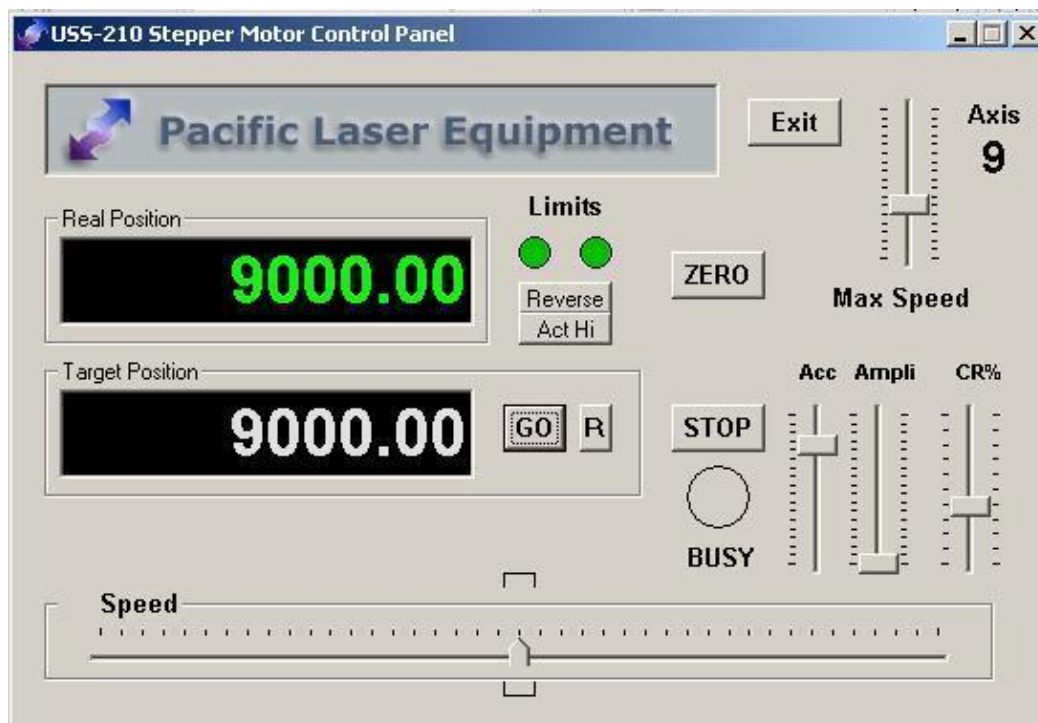
Then set the **Acc** **Ampli** and **CR%** sliders as in the screen capture.

Make sure the motor is not restricted mechanically and can move in both directions.



Move the Joystick Slider to the left like in the photo above until the iris is closed and Limit **LED** turns Red. Here click on the "STOP" and then the "ZERO" button.

Next type 9000 in the “Target Position” window and click the “GO” button.
The Iris will open to maximum.



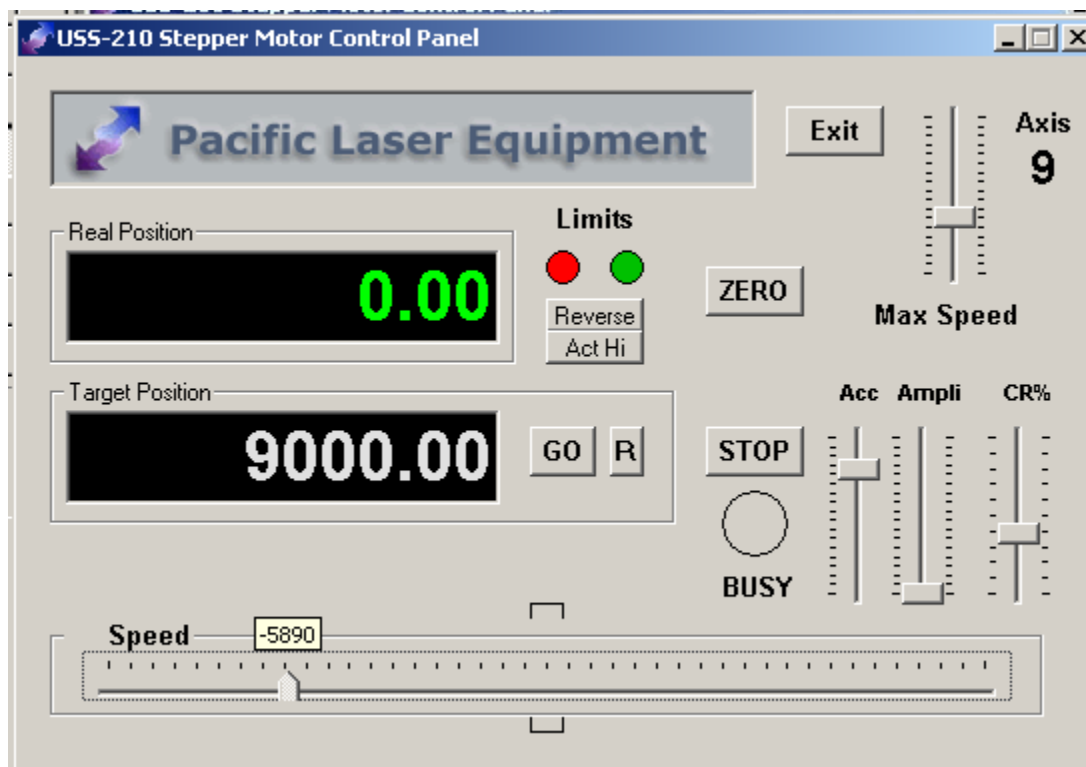
ATTENTION:

If you set the **Target** too high you will hit a hard stop at fully open and will **lose steps**. This way you can damage the **IMS-37A** or not be able to control the iris correctly. The motorized iris **IMS-37A** has only one (1) limit switch at the fully closed position.

If the **Max. Speed** is set too high value the motor will also **lose steps**.

Give a **MR-1000** "Move relative" command by typing -1000 in the Target window and click on the "R" button.

Or you can slide the Joystick to the left again until the Limit (reference) switch is reached and the motor stops.



For any problems encountered with the USS-210 controller please email at:

contact@plequipment.com