

USB Shutter

USB Shutter Features

- Small Low cost USB controlled shutter
- Draws power from a standard USB port
- Auto closing shutter (by spring) if power or communications is lost
- Quiet stepper motor operation (no clunk) to open and close
- USB Hot pluggable with Auto-detection
- Mounts on standard optical tables with 1/4-20 screws on 1.0" centers
- Clear beam aperture of 0.75 inches or ~ 19.0 Millimeters
- A hard stop defines the closed position
- Easy to use Windows (XP/Vista) based User Interface software included
- LabView Drivers and DLL files provided

(\$285.00 single piece price)



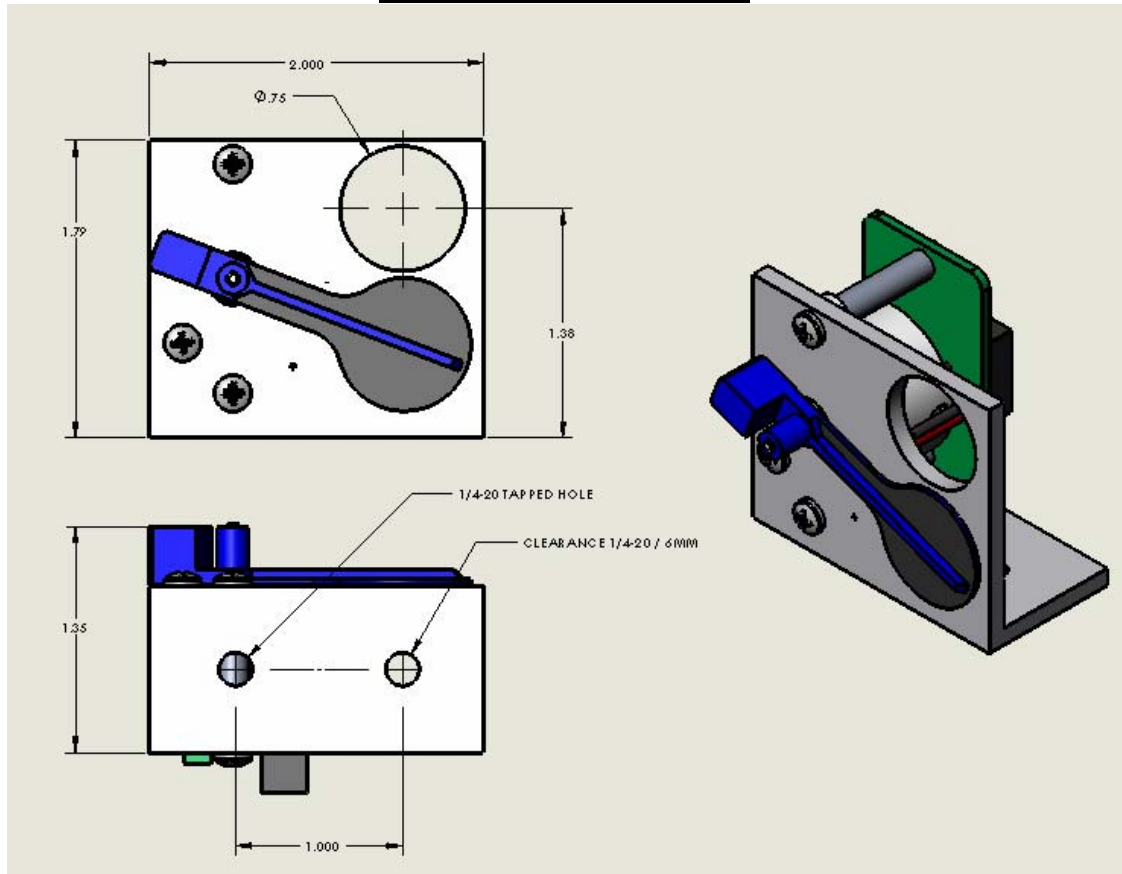
Data Optics, Inc.

115 Holmes Road • Ypsilanti MI 48198-3020
(800) 321-9026 • (734) 483-8228

www.DataOptics.com

E-mail: Sales@DataOptics.com

USB Shutter Mechanicals



USB Quad Shutter Software / User Interface

The USB Shutter user interface provides individual control of up to four shutters. Status (red/green) indicators on the panel will provide indication of whether the shutter is properly connected to the USB hub and whether it is open or closed. The shutter button is clicked with the mouse to toggle the shutter from open to close, or close to open. Each shutter is identified by its serial number located on the shutter. Descriptive labels can be assigned to each shutter. The assignments are stored and activated with the Reset/Store click button. Below is a sample of what the user interface panel looks like.



Quad USB-Shutter System

Quad System Features

- USB powered and controlled shutter System
- Four independently controlled, beam blocking, pivoting paddle, type shutters
- Easy to use Windows (XP/Vista) based User Interface with LabView and DLL support included.
- Hot pluggable with Auto-detection
- Auto closing shutter whenever power or communications is lost or disconnected
- Quiet long life stepper motor operation for opening or closing (no clunking)
- Externally powered 4-port USB Hub with 10' (3 meter) USB cables included
- Shutter mounts on standard optical tables with ¼-20 screws on 1.0" centers
- Clear beam aperture of 0.75" (19.0mm)
- A hard stop defines the closed position.

Complete System, only \$1,095



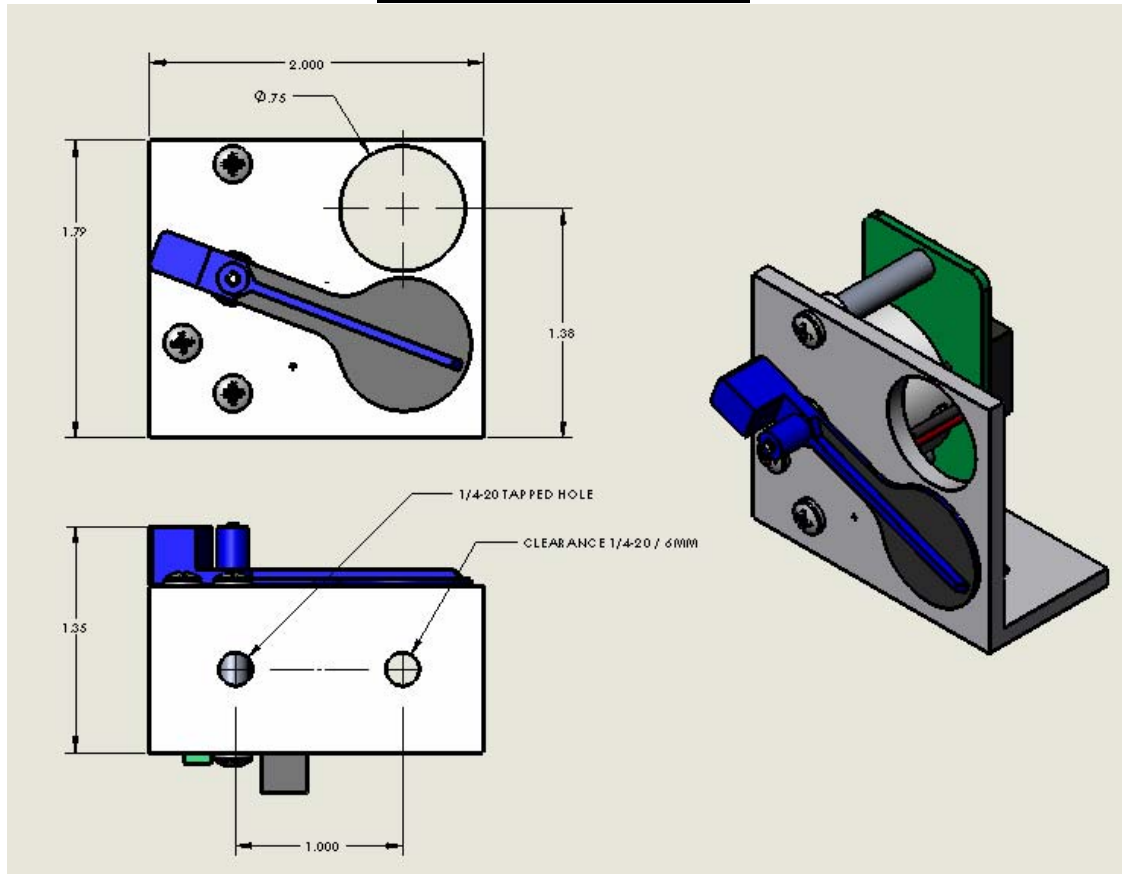
Data Optics, Inc.

115 Holmes Road • Ypsilanti MI 48198-3020
(800) 321-9026 • (734) 483-8228

www.DataOptics.com

E-mail: Sales@DataOptics.com

USB-Shutter Mechanicals



Quad USB-Shutter Software / User Interface

The Quad USB-Shutter user interface provides individual control of up to four shutters. Status (red/green) indicators on the panel will provide indication of whether the shutters are properly connected to the USB hub and whether they are open or closed. The shutter button is clicked with the mouse to toggle the shutter from open to close, or close to open. Each shutter is identified by its serial number located on the shutter. Descriptive labels can be assigned to each shutter. The assignments are stored and activated with the Reset/Store click button. Below is a sample of what the user interface panel looks like.

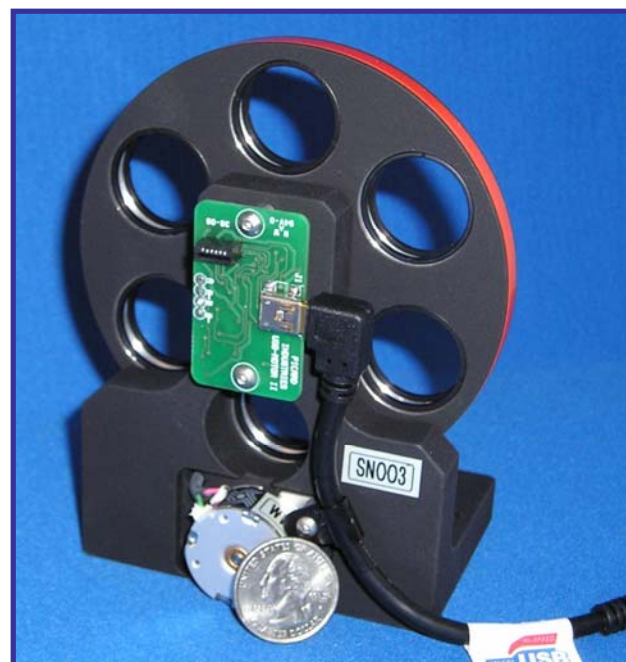


USB-FilterWheel System

System Features

- USB powered and controlled filter wheel system
- Holds six standard 1.0" (25mm) optics with 1.0" mounting/retaining rings
- All filter positions have clear apertures (no filter positions are obstructed)
- Mounts on standard optical tables with 1/4-20 screws on 1.0" centers
- Motorized or manual override control of the filter wheel's position
- Low power, motor is energized only when moving the filter wheel (changing filter positions)
- Quiet long life stepper motor operation for reliable and repeatable filter wheel positioning
- Absolute positional sensing is used to insure proper wheel positioning
- USB Hot pluggable with Auto-detection
- Easy to use Windows (XP/Vista) based User Interface software, LabView drivers and DLL files included
- A Quad System comes with four FilterWheels, an externally powered 4-port USB Hub and 10' (3 meter) USB cables

Single unit for only \$785
Complete Quad System \$2,995



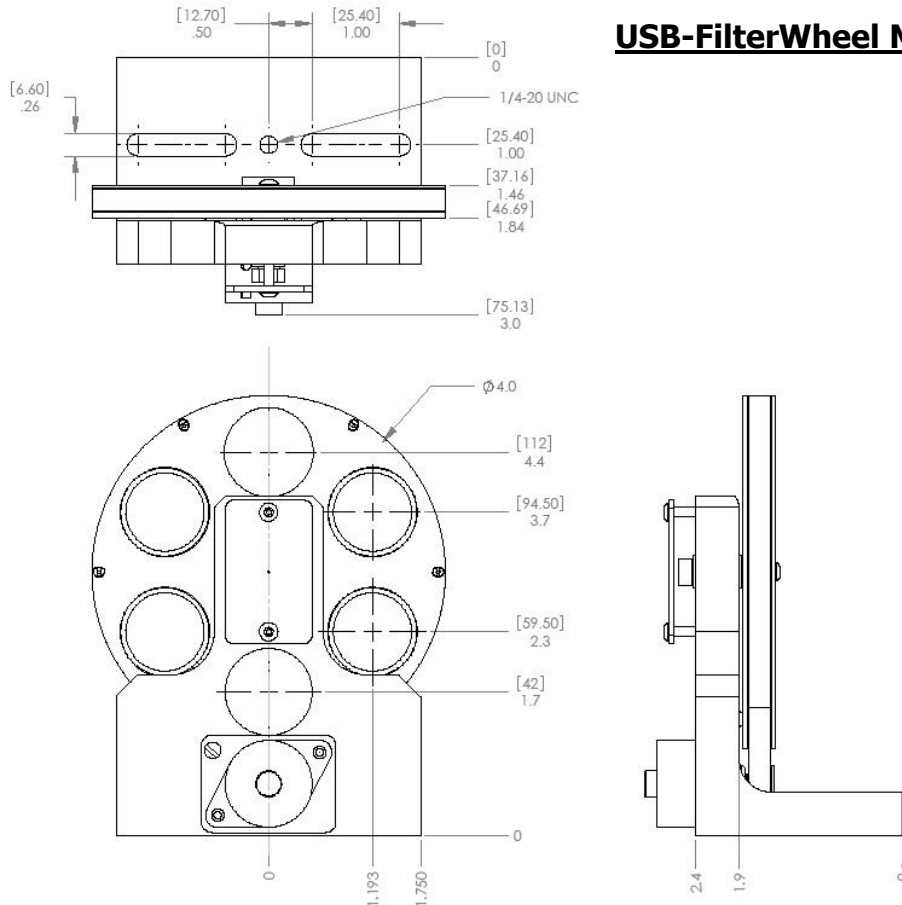
Data Optics, Inc.

115 Holmes Road • Ypsilanti MI 48198-3020
(800) 321-9026 • (734) 483-8228

www.DataOptics.com

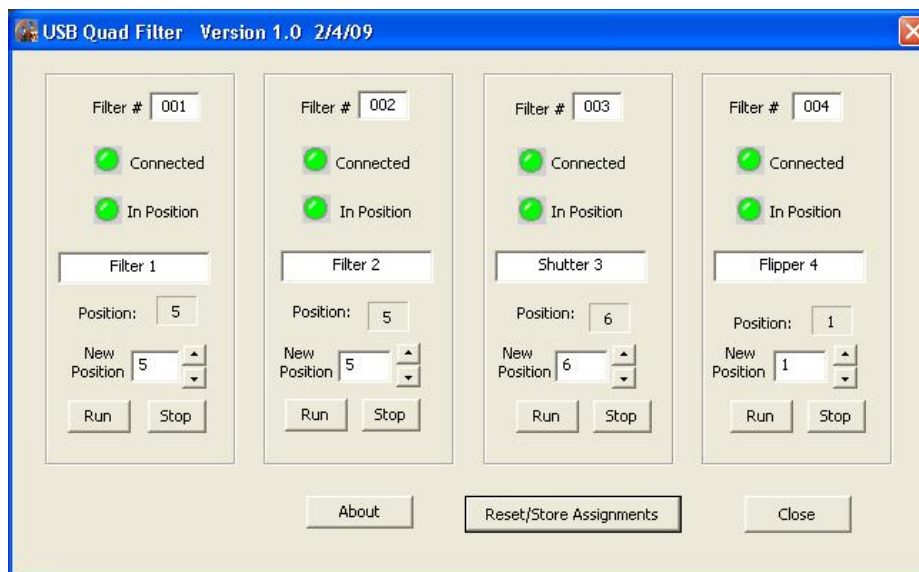
E-mail: Sales@DataOptics.com

USB-FilterWheel Mechanical Layout



USB Quad FilterWheel Software / User Interface

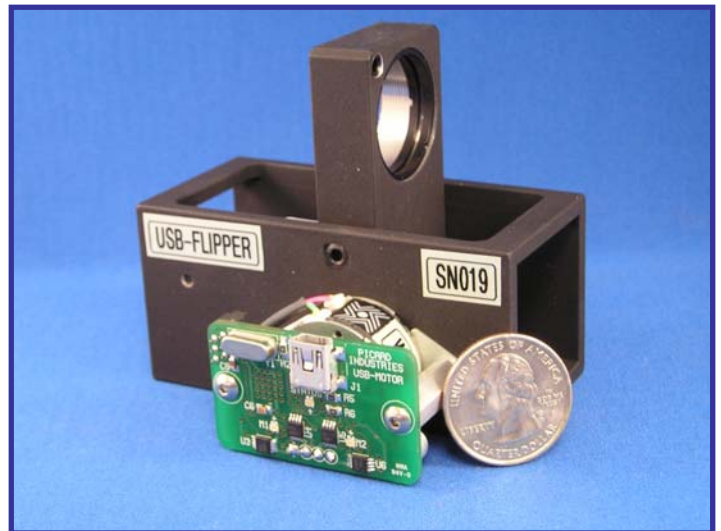
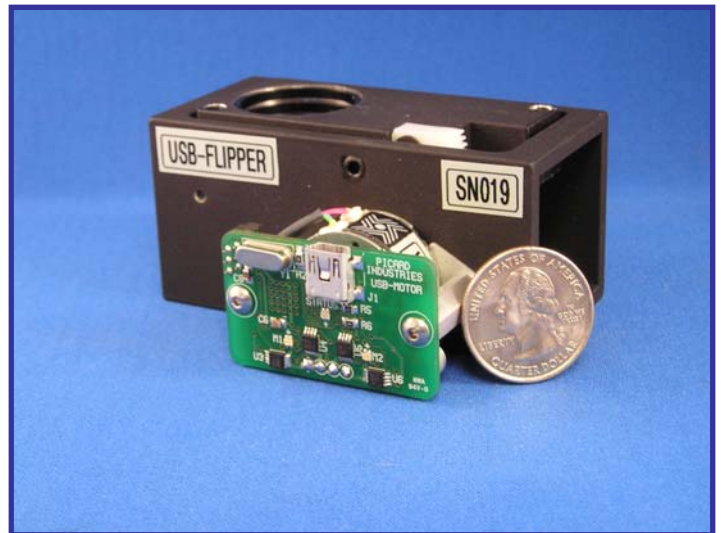
The provided Windows based user interface can individually control four USB-FilterWheels. Status (red/green) indicators on the panel will provide indication of whether the filter wheel is properly connected to the USB hub/port and its positional location. The Run, Stop and arrow buttons are clicked with the mouse to move the filter wheel to new positions. Each filter wheel is identified by its serial number located on its base. Descriptive labels can also be assigned to each unit. The assignments are stored and activated with the Reset/Store click button. Below is a sample of what the user interface panel looks like.



USB Optical Flipper System

System Features

- USB controlled Optical Flipper System
- Motorized, 90 degree flipping of filters, mirrors, lens, or other optical devices
- Designed to hold standard 1.0" (25mm) optics with 1.0" mounting/retaining rings
- Magnetically latching hard stops defines the static positions for repeatable positioning
- Flipper mounts on standard optical tables with 1/4-20 screws on 1.0" centers
- Low power motor is energized only when moving the optic (flipping positions)
- Quiet long life stepper motor operation for extending or retracting the optic (no clunking)
- USB Hot pluggable with Auto-detection
- Easy to use Windows (XP/Vista) based User Interface software, LabView drivers included
- A Quad System comes with four Flippers, an externally powered 4-port USB Hub and 10' (3 meter) USB cables



Single unit for only \$485
Complete Quad System \$1,895

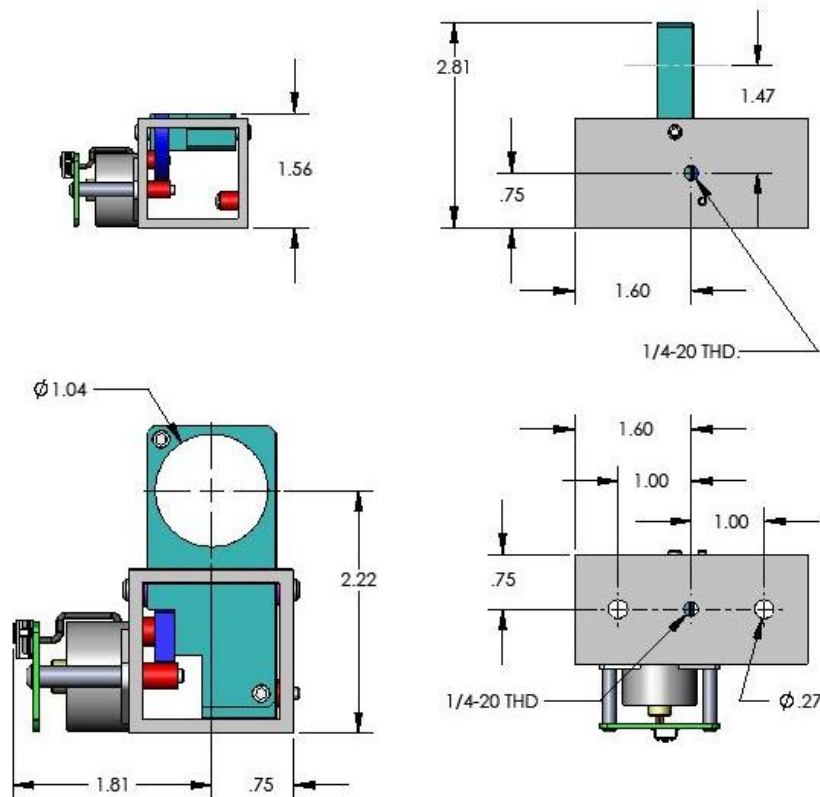
Data Optics, Inc.

115 Holmes Road • Ypsilanti MI 48198-3020
(800) 321-9026 • (734) 483-8228

www.DataOptics.com

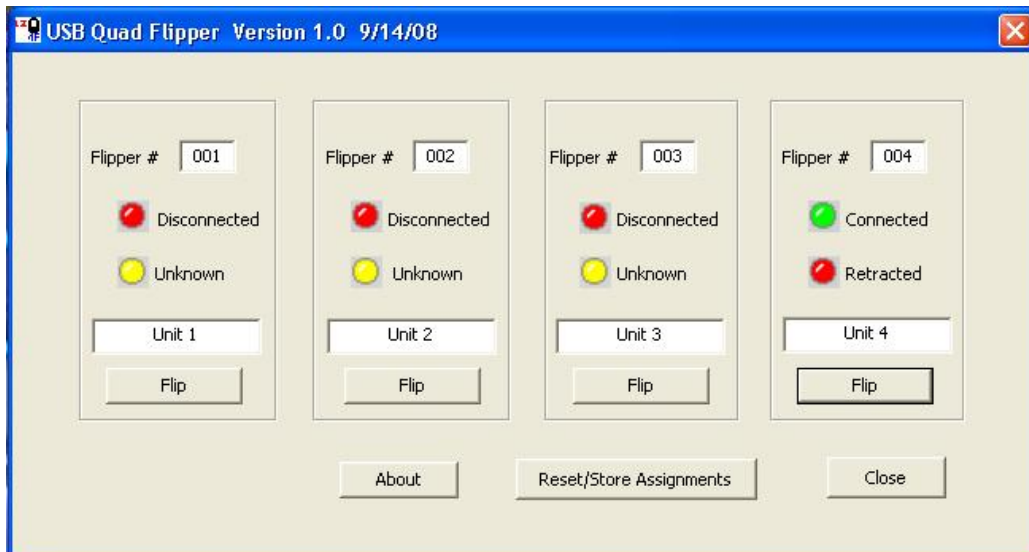
E-mail: Sales@DataOptics.com

USB Optical Flipper Mechanicals



USB Quad Flipper Software / User Interface

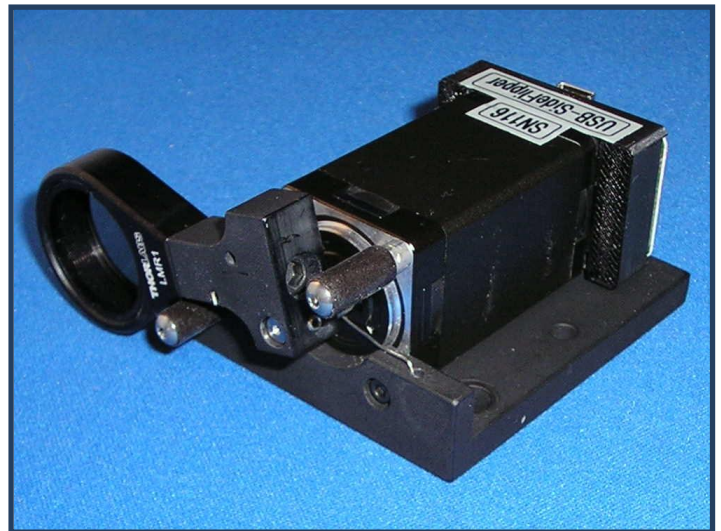
The Quad Flipper user interface provides individual control of all four Optical Flippers. Status (red/green) indicators on the panel will provide indication of whether the flipper is properly connected to the USB hub/port and whether it is extended or retracted. The Flip button is clicked with the mouse to toggle the position of the flipper. Each flipper is identified by its serial number located on the side of the flipper. Descriptive labels can also be assigned to each flipper. The assignments are stored and activated with the Reset/Store click button. Below is a sample of what the user interface panel looks like.



USB SideFlipper System

System Features

- USB Powered and controlled Optical Flipper
- Motorized, flipping of filters, mirrors, or lens
- Holds standard 1.0" (25mm) optics with 1.0" mounting/retaining rings
- Built-in magnetic position sensor provides positive real time feedback of the Flipper's position
- Flipper mounts on standard optical tables with 1/4-20 screws on 1.0" centers
- Low power motor is energized only when lifting the optic (extending). A spring returns it to the retracted position in case of power failure.
- Quiet long life stepper motor operation for extending or retracting the optic (no clunking)
- USB Hot pluggable with Auto-detection
- Easy to use Windows (XP/Vista) based User Interface software, LabView drivers included
- A Quad System comes with four Flippers, an externally powered 4-port USB Hub and 10' (3 meter) USB cables



Single unit for only \$ 475
Complete Quad System \$ 1,865

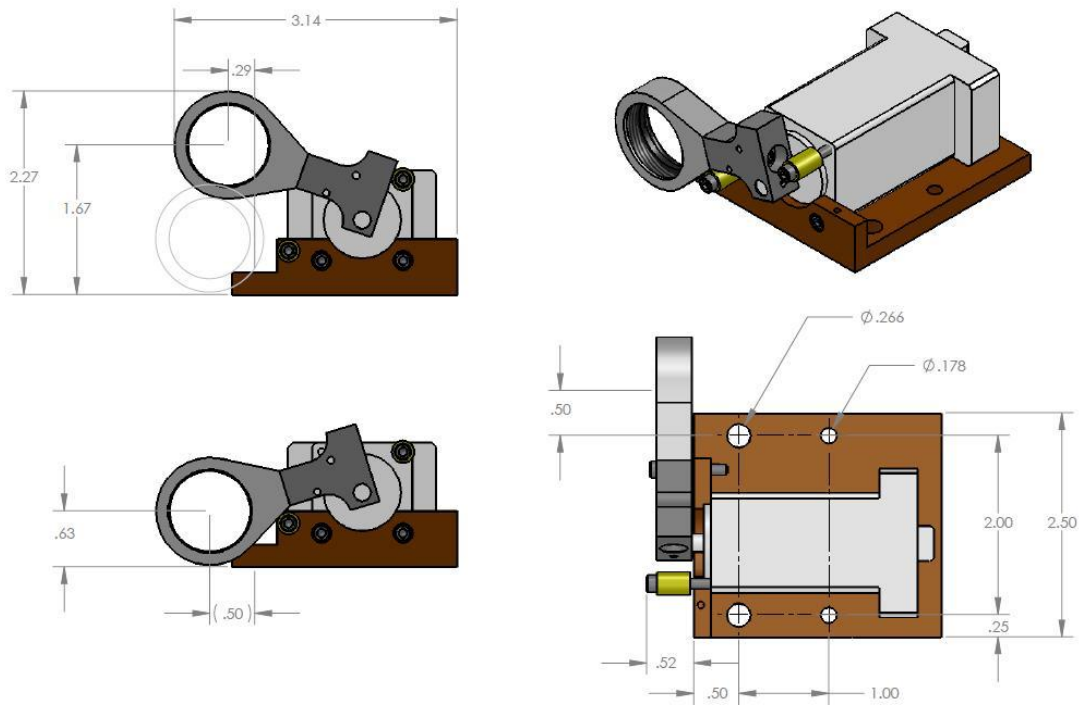
Data Optics, Inc.

115 Holmes Road • Ypsilanti MI 48198-3020
(800) 321-9026 • (734) 483-8228

www.DataOptics.com

E-mail: Sales@DataOptics.com

USB Optical Flipper Mechanicals



USB Quad Flipper Software / User Interface

A Windows based user interface is provided for individual control of up to four Optical Flippers. Status (red/green) indicators on the panel will provide indication of whether the Flipper is properly connected and whether it is extended or retracted. The Flip button is clicked to toggle the position of the Flipper. Each Flipper is identified by its serial number located on the Flipper. Descriptive labels can also be assigned to each Flipper. The assignments are stored and activated with the Reset/Store click button. Below is a sample of what the user interface panel looks like.

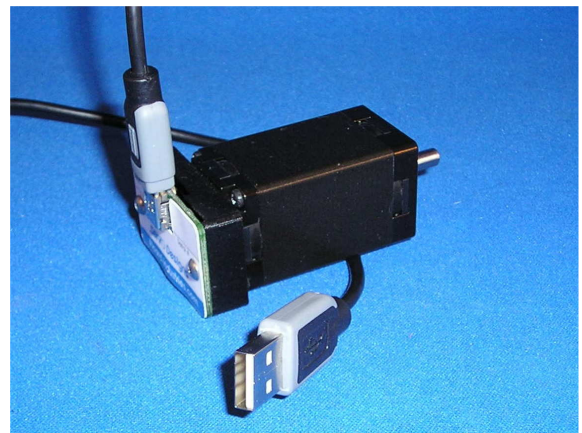


A DLL (C++) file and LabView examples are also provided to help you integrated the USB-SideFlipper into your automated test system or product application.

USB-Twister System

System Features

- Small Low cost USB controlled stepper motor system
- Draws power from a standard USB port
- Small Motor size of 28mm square (size 11)
- Torque force of about 7.0 N-cm (~10 in-oz)
- Continuous and absolute rotary motions
- Position resolution of 1.8 degrees (200 step/rev)
- USB Hot pluggable with Auto-detection
- Multi-motor control with self-powered USB Hubs
- Power efficient, power used only when moving
- Selectable step speeds and jogging steps
- PC Windows interface for easy motion control
Includes LabView Drivers and C++ DLL files



The USB-Twister is a unique, relatively low cost, stepper motor control system for simple rotary motion. It is powered and controlled solely by a standard USB port. This system provides the method of rotary motion control unmatched in size, simplicity, and ease of use.

The USB-Twister includes Windows based application software that runs on any standard PC with Windows-XP/Vista and a USB port. This user interface provides for velocity (step speed), and position (step) control. All positioning movements are relative to a Zero (user selectable) position.

Data Optics, Inc.

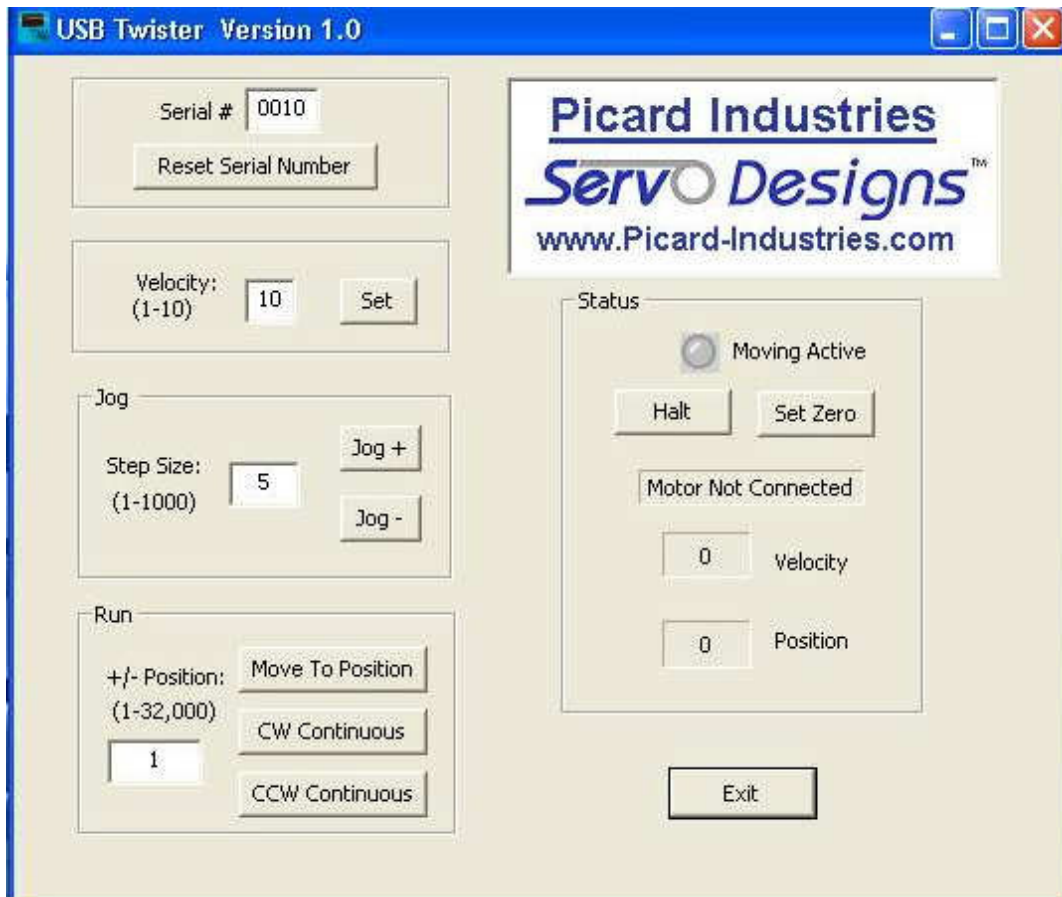
115 Holmes Road • Ypsilanti MI 48198-3020
(800) 321-9026 • (734) 483-8228

www.DataOptics.com

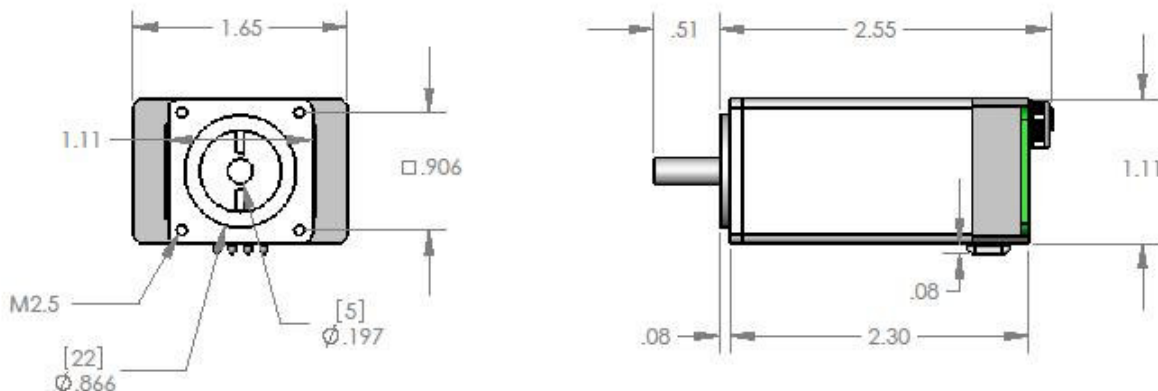
E-mail: Sales@DataOptics.com

USB Twister User Interface

Below is a screen shot of the Windows control software that is provided with the USB-Twister device. This software comes on a CD and will auto install upon insertion into any standard PC with a Windows-XP/VISTA operating system. After the software has been successfully loaded, simply insert the motor's serial number and attach the USB-Twister to a standard USB port. The software will auto-detect the connection and allow you to begin controlling the position of the motor. Multiple motors can be connected by using externally powered USB hubs. Open multiple applications of this software and assign each with the serial numbers of the USB-Twister motors. LabView examples and DLL files will allow the user to automate this control functionality directly into their own custom application.



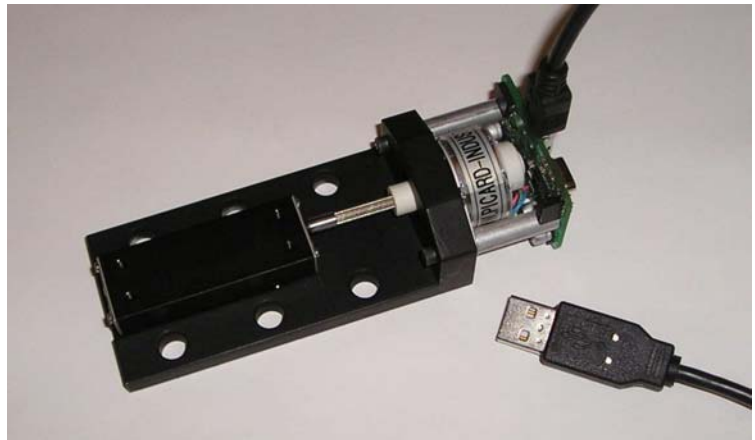
USB-Twister Dimensions



USB Powered Linear Slide

System Features

- Small Low cost stepper motor controlled linear slide (**\$445 each, single piece**)
- Draws power from a standard USB port , no external power supply required
- Self-contained (onboard) control electronics and driver
- Small system size of 4.5 X 12 cm (1.75" X 4.75")
- Force of about 1.0 Kg Loads (~2.2 pounds)
- Linear range motion of about 12mm (~0.5")
- Position resolution of 6.4 microns (0.00025")
- Power efficient, holds position with no power
- Built-in magnetic (Hall effect) home sensor
- PC Windows interface for easy motion control



The USB-Slide is a relatively low cost system for precision linear motion. Powered and controlled solely by a standard USB port, this system provides the method of linear motion control unmatched in size, simplicity, and ease of use.

The USB-Slide application software runs on any standard PC with Windows-XP with a standard USB port. This user interface provides for velocity (step speed), and position (step) control. All position movements are relative to the home (fully retracted) position. A built-in magnetic (Hall) sensor is used to establish this home position. The software provides a homing function to properly use this sensor.

Data Optics, Inc.

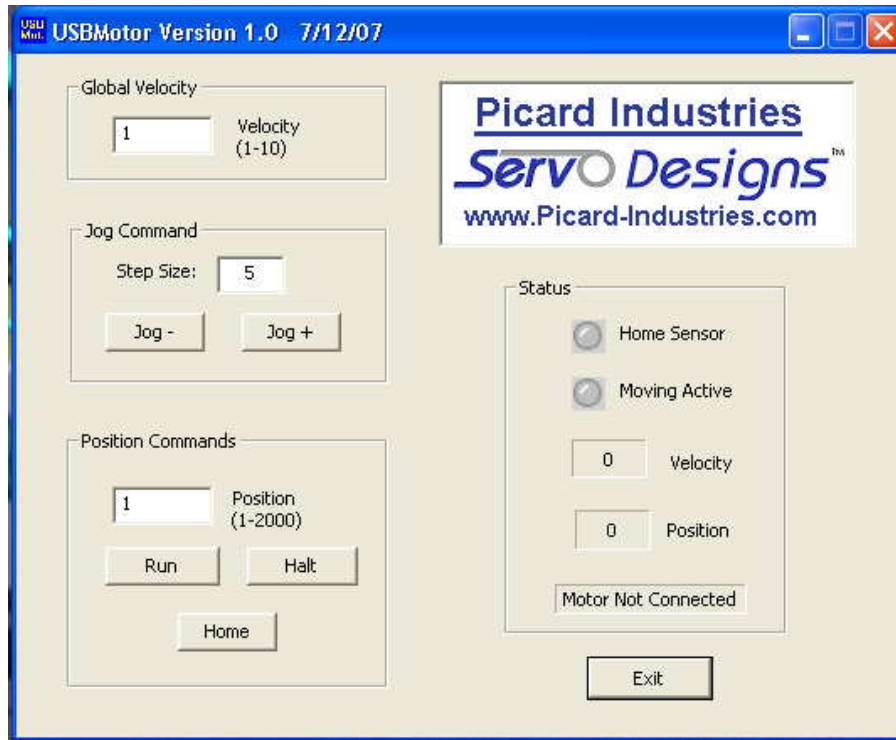
115 Holmes Road • Ypsilanti MI 48198-3020
(800) 321-9026 • (734) 483-8228

www.DataOptics.com

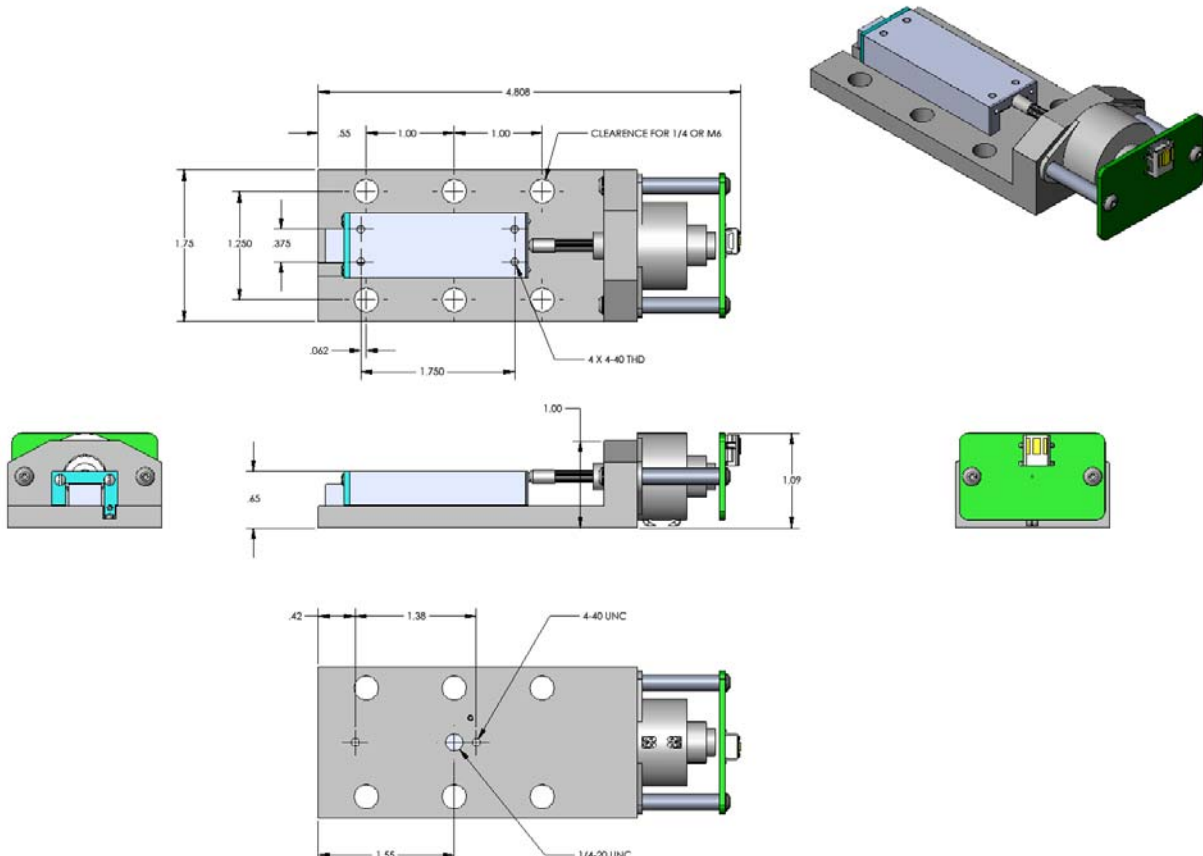
E-mail: Sales@DataOptics.com

USB Motor/Slide User Interface

Below is a screen shot of the control software that is provided with the USB-Motor/Slide system. This software comes on a CD and will automatically begin the setup process upon insertion into any standard PC with a Windows-XP/VISTA operating system. After the software has been successfully loaded, simply attach the USB-Slide to a USB port with the provided cable. The software will auto-detect the connection and allow you to begin controlling the position of the motor/slide.



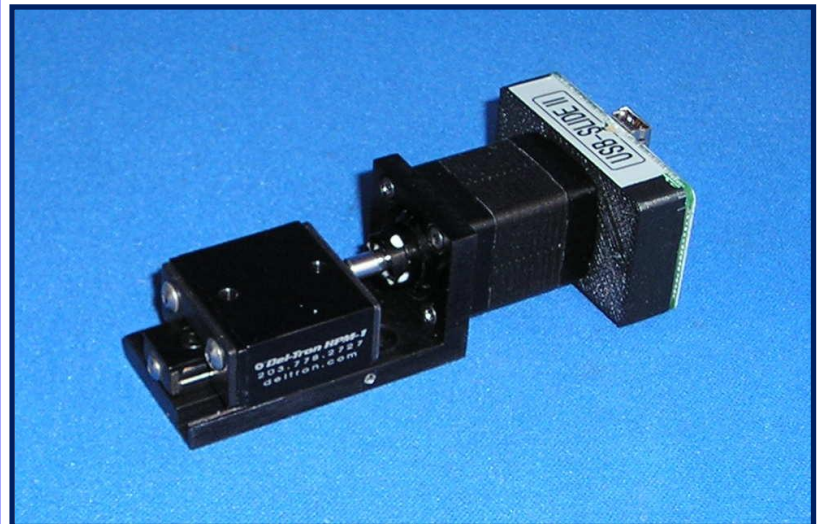
USB Slide Mechanicals



USB-Slide II

System Features

- Small precision stepper motor controlled linear slide (**\$665 each, single piece**)
- Draws power from a standard USB port , no external power supply required
- Fully self-contained, with onboard control and driver electronics
- Small system size of 4.3 cm X 9.2 cm (1.7" X 3.6")
- Move loads of over 1.0 Kg (~2.2 pounds)
- Linear range motion of about 9mm (~0.35")
- Positional resolution of 1.5 microns (0.00006")
- Power efficient, holds position with no power
- Built-in magnetic (Hall effect) home sensor
- PC Windows based user interface included for easy "out of the box" motion control
- LabView and C examples with a DLL file included for custom automated application



The USB-Slide II is a motorized precision linear slide for automated applications. Powered and controlled solely by a standard USB port, this system provides the method of automated control unmatched in size, simplicity, and ease of use.

The USB-Slide application software runs on any standard PC with Windows-XP/Vista with a standard USB port. This user interface provides for velocity (step speed), and position (step) control. All position movements are relative to the home (fully retracted) position. A built-in magnetic (Hall) sensor is used to establish this home position. Each USB-Slide has a unique serial number to allow multiple devices to be controlled with the use of an externally powered USB Hub.

Data Optics, Inc.

115 Holmes Road • Ypsilanti MI 48198-3020

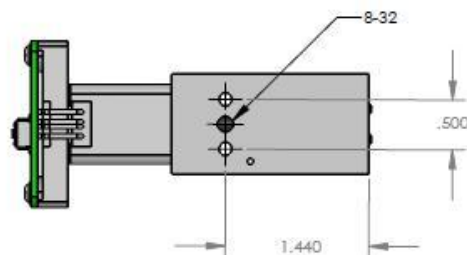
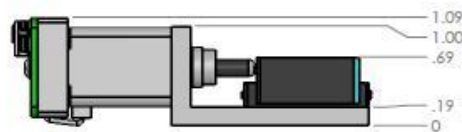
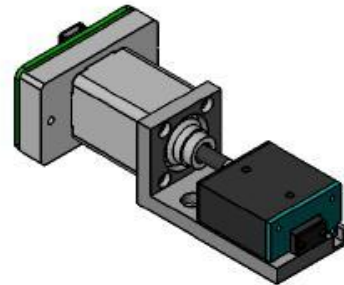
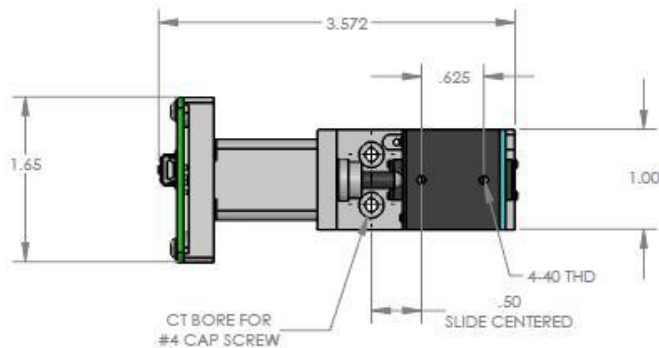
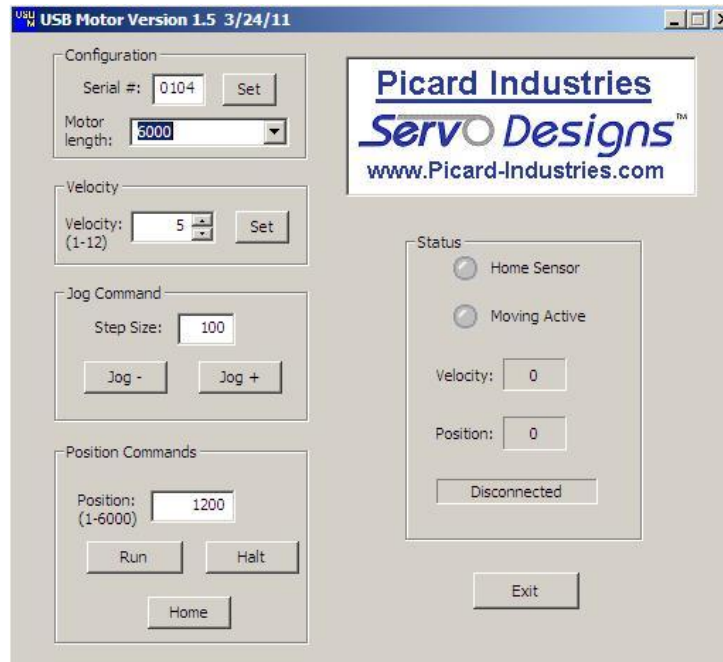
(800) 321-9026 • (734) 483-8228

www.DataOptics.com

E-mail: Sales@DataOptics.com

USB Motor/Slide User Interface

Below is a screen shot of the control software that is provided with the USB-Motor/Slide system. This software comes on a CD and will automatically begin the setup process upon insertion into any standard PC with a Windows-XP/VISTA operating system. After the software has been successfully loaded, simply attach the USB-Slide II to a USB port with the provided cable. Enter the unit's serial number and click the Set configuration button. The software will auto-detect the connection in the Status box and allow you to begin controlling the position of the motor/slide.

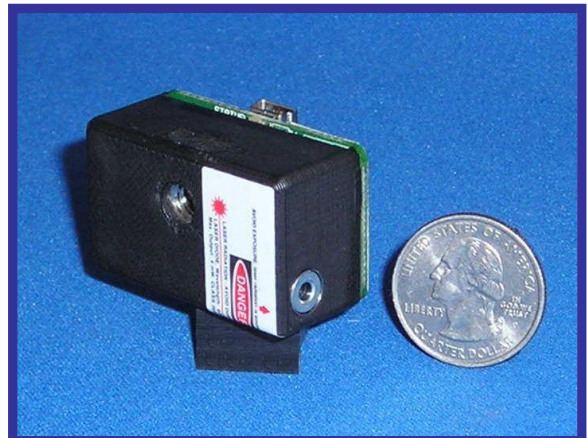


**Picard Industries
USB-Slide II**

USB-Laser Module

Device Features

- USB powered and controlled Laser Diode
(\$97.00 single piece price)
- Draws power from a standard USB port of a PC
- Small module size of 1.6" x 1.0" x 0.8" (40x25x20)
- Standard ¼-20 threaded optical table mounting
- Class IIIA , less than 3mW @ 650nm Wavelength
- Remote Laser Diode control (On/Off and Pulsing)
- Convenient USB Hot pluggable with Auto-detection
- Multi-Laser control possible with external USB Hubs
- PC Windows interface for easy laser control
Includes a DLL file with LabView and C++ Examples



The USB-Laser is a unique, relatively low cost, laser diode control system. It is powered and controlled solely by a standard USB port. This system provides the method of automated PC Laser control unmatched in size, simplicity, and ease of use. For typical use in the alignment and positioning of beam-line components.

The USB-Laser includes a Windows based, application software that runs on any standard PC with Windows-XP/Vista and a USB port. This user interface provides for manual control of the Laser diode.

Data Optics, Inc.

115 Holmes Road • Ypsilanti MI 48198-3020
(800) 321-9026 • (734) 483-8228

www.DataOptics.com

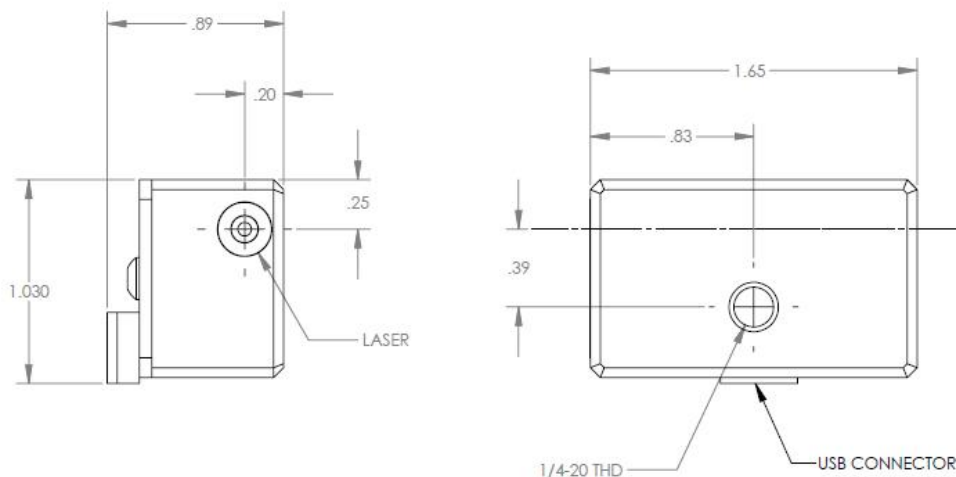
E-mail: Sales@DataOptics.com

USB-Laser User Interface

Below is a screen shot of the Windows control software that is provided with the USB-Laser device. This software comes on a CD and will auto install upon insertion into any standard PC with a Windows-XP/VISTA operating system. After the software has been successfully loaded, simply insert the USB-Laser's **serial number** and attach it to a standard USB port. The software will auto-detect the connection and allow you to begin controlling (On/Off/Pulse) the laser diode. Multiple USB-Lasers can be connected together by using an externally powered USB hub. Open multiple applications of this software and assign each with the serial number of each USB-Laser. A DLL file is provided with LabView and C++ examples to allow the user to automate this control functionality directly into their own custom application.



USB-Laser module Dimensions



Mini-Hexapod Platform

x Low cost 6-axis control system **(\$14,950)**

- Precision motions, with step resolutions of 0.003175 millimeters (0.000125")
- Stable motions, with position repeatability better than 0.001 millimeters (0.00005")
- Designed for 2.0 Kg Loads (~5 pounds)
- 25mm (~1.0") range of motion in XYZ
- 20 degree range of rotation about XYZ
- Low backlash, less than 1.0 micron (0.00005")
- Power efficient, holds position with no power
- PC Windows interface for easy motion programming and storing of motion profiles



The Mini-hexapod is a relatively low cost kinematics platform that allows motion with six-degrees of freedom. These motions are in the X, Y, and Z direction, with rotations about those axes. Six linear actuators are placed in a triangular pattern to achieve a rigid, stable, and precise movement while carrying a Load. With its dedicated drive electronics and Windows user interface, the control of the platform's motions is simplified for ease of use.

If your application requires the motions of a hexapod platform with 0.001 millimeter repeatability, then you do not need the more expensive platforms on the market. The Mini-hexapod platform is the answer you have been looking for.

Data Optics, Inc.

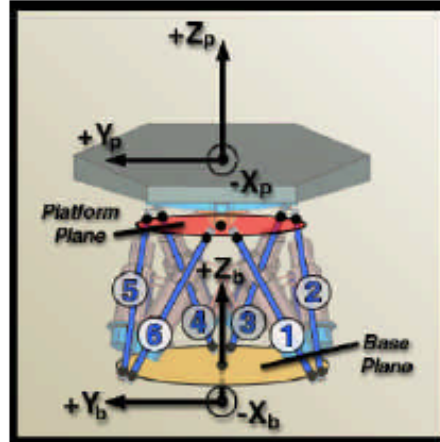
115 Holmes Road • Ypsilanti MI 48198-3020
(800) 321-9026 • (734) 483-8228

www.DataOptics.com

E-mail: Sales@DataOptics.com

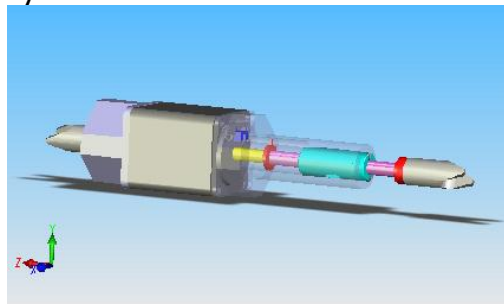
Platform Basics

The Mini-Hexapod platform consists of Base (b) and a movable Platform (p). The Base is fixed and is reference plane for orienting and positioning the Platform plane. The two planes are connected with three pairs of linear actuators, 1 through 6. The actuators are attached to Base and Platform with movable joints to allow motion of the Platform. By adjusting the lengths of each actuator the Platform can be positioned to any position within its range. The positional resolution and precision of motion is determined by the performance of the actuators. Springs are used to keep all moving parts in compression to eliminate or minimize backlash in the system.



Actuators

The actuators are made with small stepper motors with precision lead screws and recirculating ball spline shafts. The motor's rotor is the rotating nut for the leadscrew. The recirculating ball spline shaft keeps the screw from rotating and provides the stiffness (minimized side play) of the actuator. A home sensor is mounted in the actuator and defines the actuator's retracted position. Each actuator has its own micro-stepping drive electronics that is controlled by a microcontroller. This dedicated controller can position any actuator or all the actuators to different positions at different velocities simultaneously.



Motor Drive & Software Control

The Mini-Hexapod system comes complete with the platform with its microcontroller, motors drivers, power supply, and all necessary cables, at no extra cost. The Mini-Hexapod Platform is a turn key system complete with PC windows software on a CD. Motion commands are transmitted to the controller through a standard PC serial port.

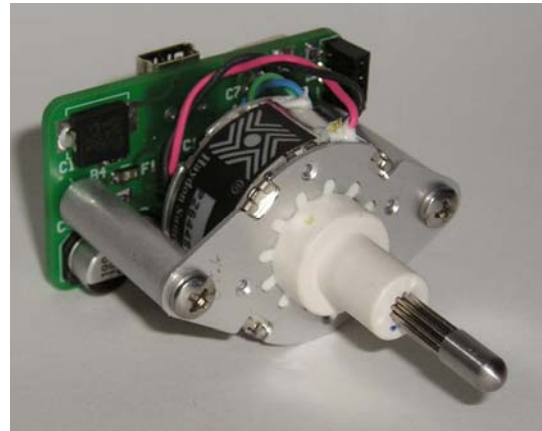
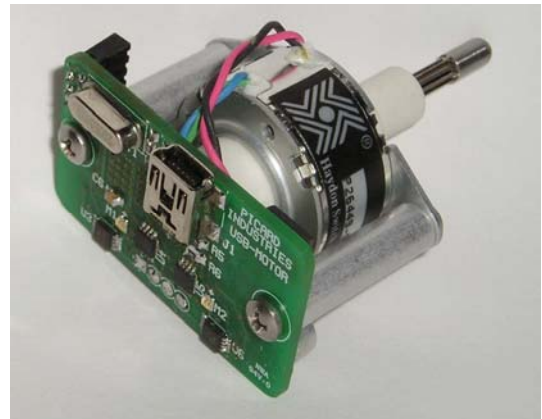
Some of the features available are:

- Velocities in steps/seconds (sps) from 100 to 500 sps
- Step positions from the fully retracted "home" position to 7,500 steps.
- Each step (resolution) moves the actuators length by 0.000125" (0.003175mm).
- Multi actuator motions are possible with each actuator operating at different velocities.
- Motion programs (scripts) can be written and stored as files on a PC.
- The motion programs have counters, delays and loop functions to enable more sophisticated motions.

USB Motor Controller

System Features

- Small Low cost stepper motor (USB) control system
(\$245.00 single piece price)
- Draws power from a standard USB port
- Small Motor size of 25mm diameter (1.0")
- Force of about 1.0 Kg Loads (~2.2 pounds)
- Linear range motion of about 12mm (~0.5")
- Position resolution of 6.4 microns (0.00025")
- Power efficient, holds position with no power
- Built-in magnetic (Hall effect) home sensor
- PC Windows interface for easy motion control
Includes LabView Drivers and DLL files



The USB-Motor is a relatively low cost system for precision linear motion. Powered and controlled solely by a standard USB port, this system provides the method of linear motion control unmatched in size, simplicity, and ease of use.

The USB-Motor application software runs on any standard PC with Windows-XP with a USB port. This user interface provides for velocity (step speed), and position (step) control. All position movements are relative to the home (fully retracted) position. A built-in magnetic (Hall) sensor is used to establish this home position. The software provides a homing function to properly use this sensor.

Data Optics, Inc.

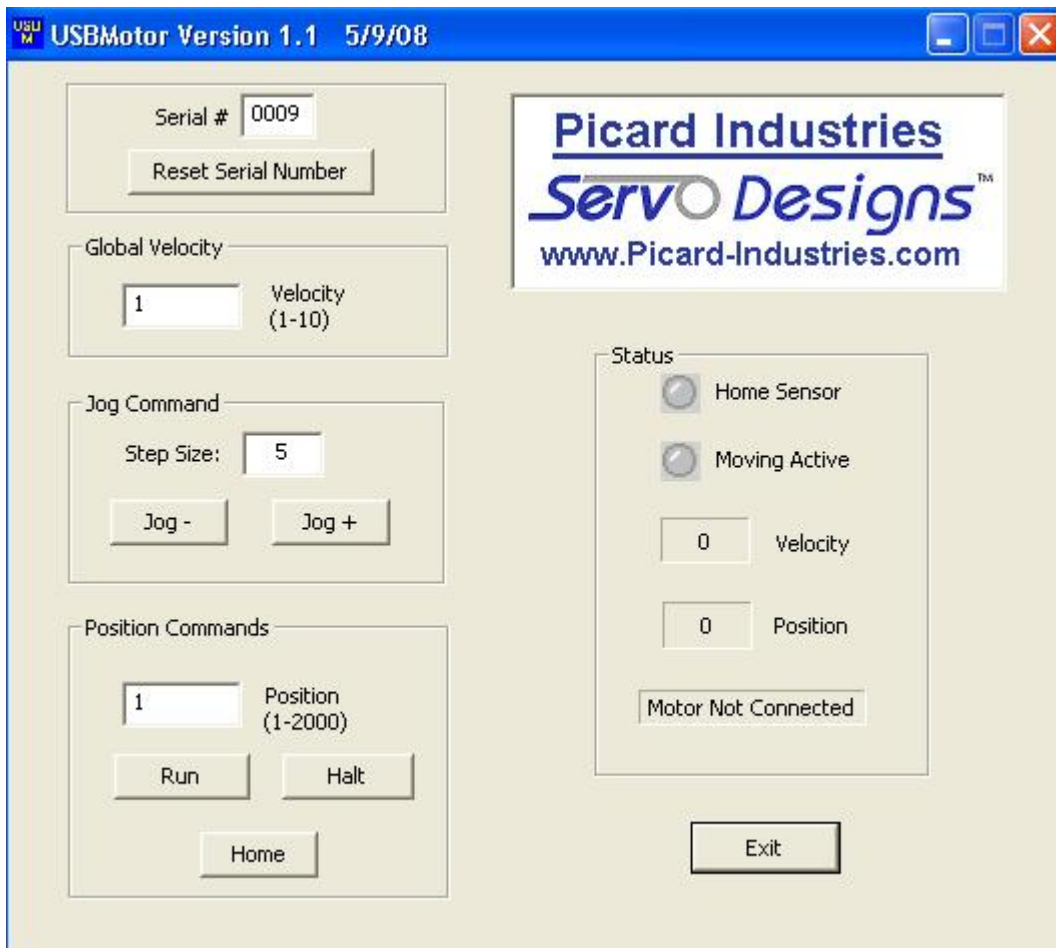
115 Holmes Road • Ypsilanti MI 48198-3020
(800) 321-9026 • (734) 483-8228

www.DataOptics.com

E-mail: Sales@DataOptics.com

USB Motor User Interface

Below is a screen shot of the control software that is provided with the USB-Motor device. This software comes on a CD and will auto install upon insertion into any standard PC with a Windows-XP/VISTA operating system. After the software has been successfully loaded, simply insert the motor's serial number and attach the USB-Motor to a standard USB port. The software will auto-detect the connection and allow you to begin controlling the position of the motor.



USB Motor PCB

25mm Linear Stepper Motor

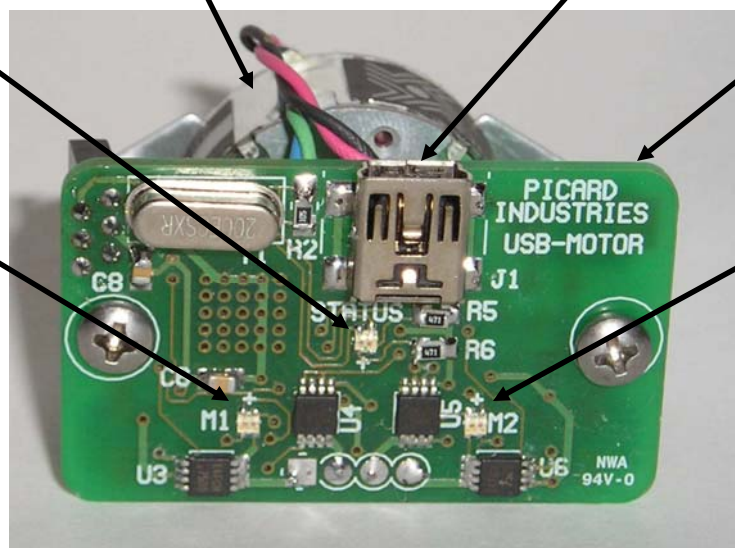
USB Cable Connection

Controller Status LED
Green = USB connected
Red = Busy (moving)
Flashing Red = Error
(Can not find Home)

Coil-A (M1) Status LED
Green = Pos Current
Red = Neg current
None = Off

2-Phase Bi-Polar Driver with Intergrated USB Micro-controller

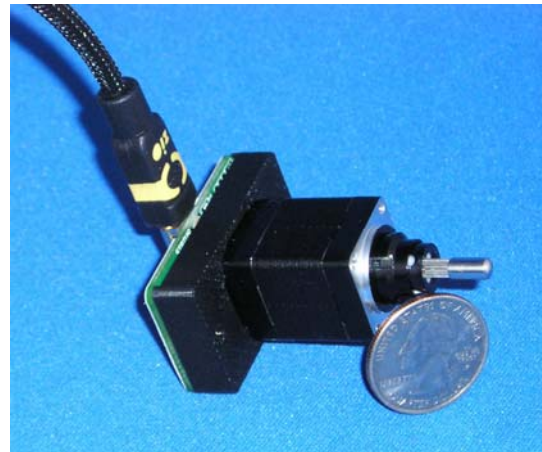
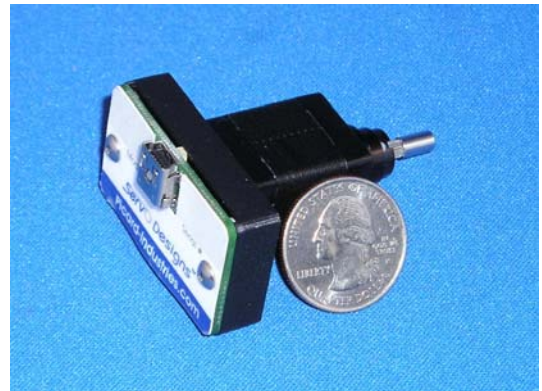
Coil-B (M2) Status LED
Green = Pos Current
Red = Neg current
None = Off



USB-Motor II Controller

System Features

- Small Low cost stepper motor (USB) control system
(\$395.00 single piece price)
- Draws power from a standard USB port
- Small Motor size of 20mm square (size 8)
- Force of about 1.0 Kg Loads (~2.2 pounds)
- Linear range motion of about 9mm (~0.375")
- Position resolution of 1.5 microns (0.00006")
- Power efficient, holds position with no power
- Built-in magnetic (Hall effect) home sensor
- PC Windows interface for easy motion control
Includes LabView Drivers and C++ DLL files



The USB-Motor II is a relatively low cost system for precision linear motion. Powered and controlled solely by a standard USB port, this system provides the method of linear motion control unmatched in size, simplicity, and ease of use.

The USB-Motor II application software runs on any standard PC with Windows-XP with a USB port. This user interface provides for velocity (step speed), and position (step) control. All position movements are relative to the home (fully retracted) position. A built-in magnetic (Hall) sensor is used to establish this home position. The software provides a homing function to properly use this sensor.

Data Optics, Inc.

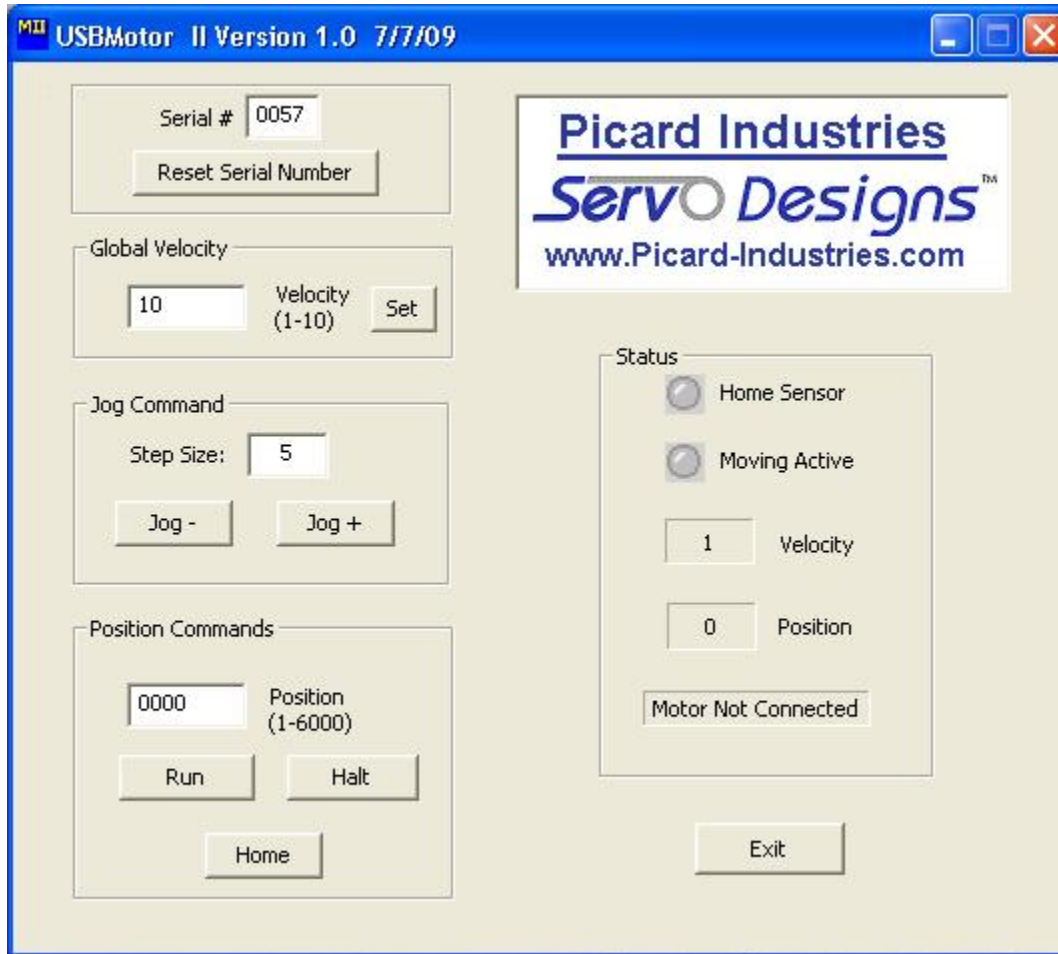
115 Holmes Road • Ypsilanti MI 48198-3020
(800) 321-9026 • (734) 483-8228

www.DataOptics.com

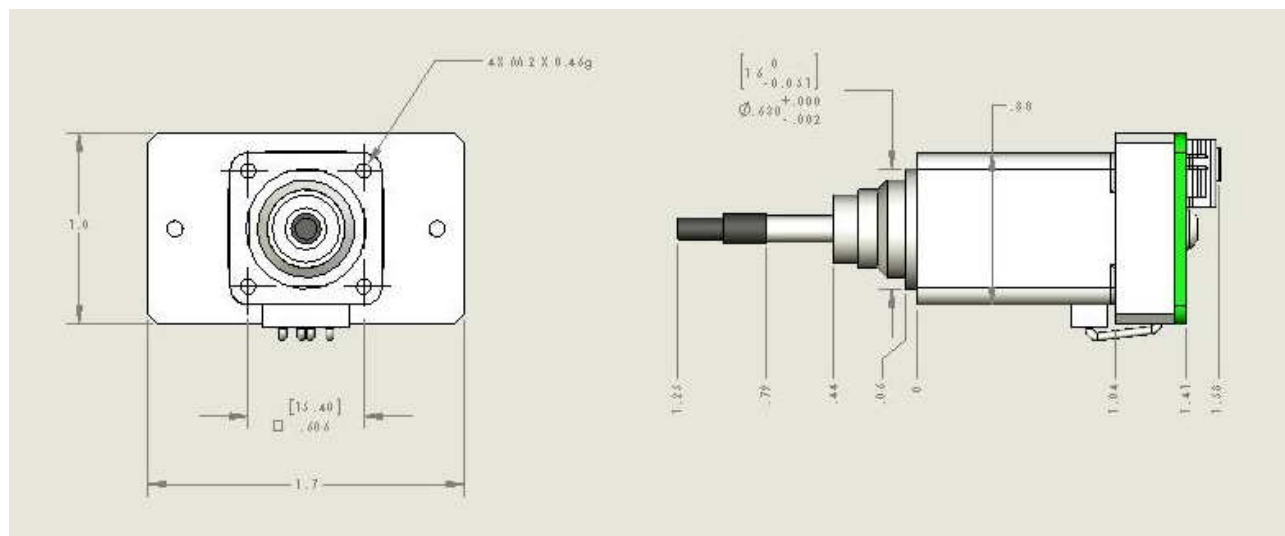
E-mail: Sales@DataOptics.com

USB Motor II User Interface

Below is a screen shot of the control software that is provided with the USB-Motor II device. This software comes on a CD and will auto install upon insertion into any standard PC with a Windows-XP/VISTA operating system. After the software has been successfully loaded, simply insert the motor's serial number and attach the USB-Motor II to a standard USB port. The software will auto-detect the connection and allow you to begin controlling the position of the motor.



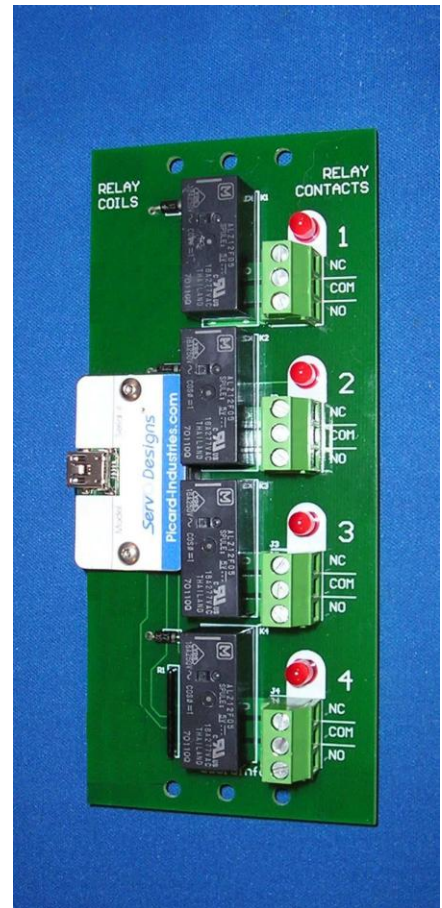
USB-Motor II Dimensions



USB-Relay Board

System Features

- USB powered and controlled Relay Board
(\$ 165.00 single piece price)
- Draws power from a standard USB port of a PC
- Small Board size of 2.6" X 5.9" with screw terminals
- Controls four single pole, double throw relays
- Relay contacts rated for 15 Amp @ 250 Vac
- Status LEDs provided to show state of relays
- USB Hot pluggable with Auto-detection
- Multi-board control possible with an external USB Hub
- PC Windows interface for easy relay control
Includes LabView Drivers and C++ DLL file



The USB-Relay is a unique, relatively low cost, mechanical relay control system. It is powered and controlled solely by a standard USB port. This system provides the method of automated PC relay control unmatched in size, simplicity, and ease of use.

The USB-Relay includes Windows based application software that runs on any standard PC with Windows-XP/Vista and a USB port. This user interface provides for individual manual control of all four relays.

Data Optics, Inc.

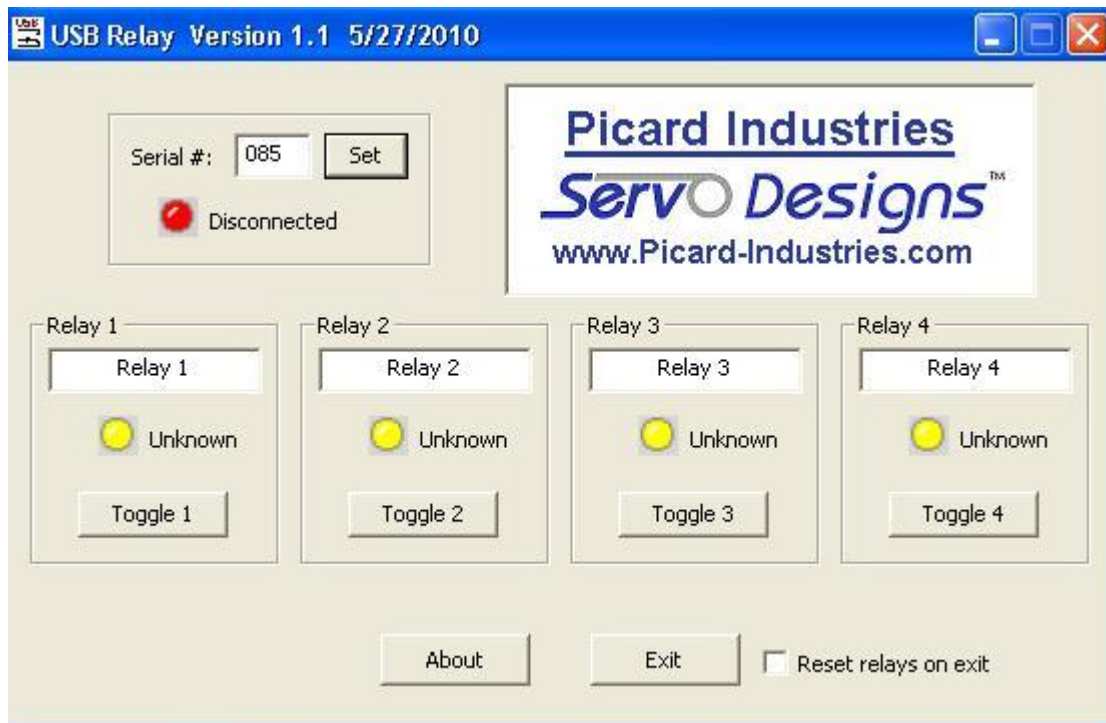
115 Holmes Road • Ypsilanti MI 48198-3020
(800) 321-9026 • (734) 483-8228

www.DataOptics.com

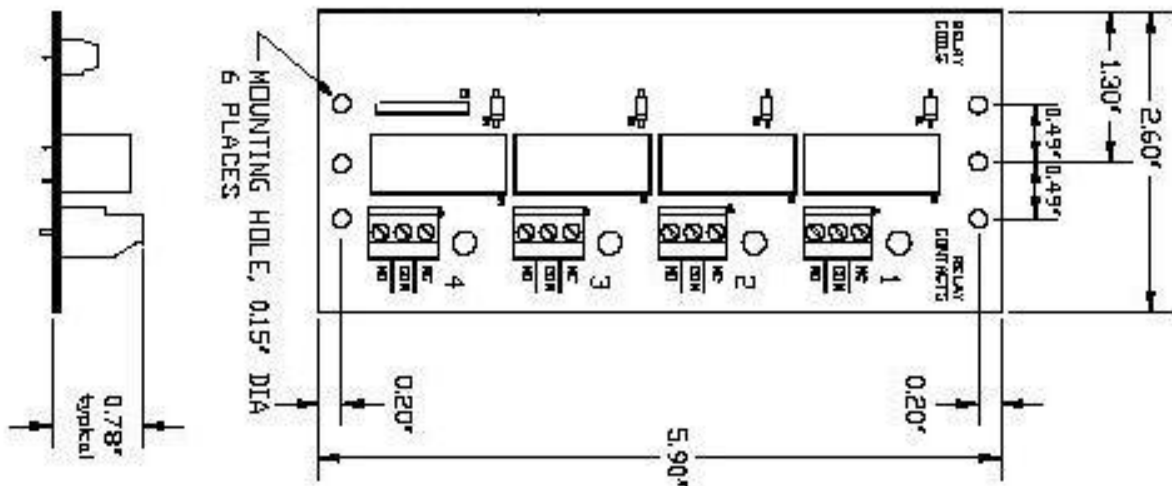
E-mail: Sales@DataOptics.com

USB Relay User Interface

Below is a screen shot of the Windows control software that is provided with the USB-Relay device. This software comes on a CD and will auto install upon insertion into any standard PC with a Windows-XP/VISTA operating system. After the software has been successfully loaded, simply insert the relay board's serial number and attach the USB-Relay to a standard USB port. The software will auto-detect the connection and allow you to begin controlling (On/Off) the relays. Multiple relay boards can be connected together by using an externally powered USB hub. Open multiple applications of this software and assign each with the serial number of each relay board. LabView examples and C++ DLL files will allow the user to automate this control functionality directly into their own custom application.



USB-Relay Board Dimensions



Programmable Solenoid (PPS-2)

- Small 1.0" diameter motor
- Simple Control Interface – only 3 wires: Power, Ground and **CMD** signal
- Constant Current / Force
- Ball bearing brushless stepper (for longer life)
- .001" position resolution
- +/-0.0005" position repeatability
- Onboard programming
- Status LEDs to verify solenoid motion
- Wide operating voltage (12 volts to 28 volts)
- Self-contained electronics



The new Picard Programmable Solenoid (PPS-2) delivers the motion capability of a sophisticated stepper motor system with the simplicity of a linear solenoid. A solenoid can now have a smooth motion without the need for an expensive motor control system. The PPS-2 provides the motion of a linear solenoid without the non-linear force and erratic banging motion against a hard stop. The electronics of the PPS-2 allows the user to program and store the desired motion profile using the simple user interface. Three buttons and two LEDs are used to set the distance of motion and velocity. After programming, the PPS-2 operates as a linear solenoid. The PPS-2 requires power, ground, and a control signal. The control signal extends or retracts the solenoid. Any device that can connect a wire to ground (switch, sensor, PLC, an open-collector or open-drain transistor output, etc.) can control the PPS-2. The innovative PPS-2 gives programmability to the motion of a linear solenoid without the expense of a costly motor control system.

Data Optics, Inc.

115 Holmes Road • Ypsilanti MI 48198-3020
(800) 321-9026 • (734) 483-8228

www.DataOptics.com

E-mail: Sales@DataOptics.com

Mating Connector Pin Outs

- PIN 1 **Power** (12-28 volts at 0.5 amps maximum)
- PIN 2 **Ground** (power return path)
- PIN 3 **CMD** signal (commands the solenoid to extend when connected to ground, to return to home when open)
- PIN 4 **ACK** signal (optical feedback, logic Hi when in the home position. Logic Lo when in the extended position)
- PIN 5 **Reset** (optional signal used to remotely reset an error condition, resets the PPS-2 when connected to Ground, runs normally when left open)

Molex P/N 50-57-9405 Pins P/N 16-02-0103

Operation

The PPS-2 has two modes of operation, **RUN** and **PGM** (program). The PPS-2 defaults to **RUN** mode on power up. In this mode, the PPS-2 operates as a linear solenoid. The PPS-2 is controlled through the five pin latch connector. This connection supplies power, ground and the **CMD** (command) signal. Optional is an **ACK** (acknowledge) signal. This signal provides feedback and motion status. To extend the solenoid, the **CMD** signal is connected to ground. This will cause the **CMD** LED (red) to be lit. The **ACK** signal will sink to ground when the solenoid is fully extended, causing the **ACK** LED (yellow) to light. When the **CMD** signal is open (not grounded), the **CMD** LED will go out and the solenoid will begin retracting to its home position. When it reaches home position, the **ACK** signal will go to a 5-volt level, and the **ACK** LED will turn off. This signifies the completion of the motion. The motions (both extending and retracting) will use the motion profiles programmed by the user. The **MODE** LED (green) is not lit when in the **RUN** mode.

The **MODE** LED (green) will be lit when in the **PGM** mode. To enter this mode, both the **INC** and **DEC** switch should be depressed and held until the **MODE** LED becomes lit (approximately 3 seconds). You are now in the programming mode. The **SEL** button is now used to select which of the two parameters you can program. They are "Position" and "Velocity." By momentarily pushing the **SEL** button, the **MODE** LED will begin to blink differently. One blink denotes the Position parameter, and two blinks denote Velocity. When the LED is lit but not blinking, the user can leave the programming mode by holding both the **INC** and **DEC** button until the **MODE** LED extinguishes.

Programming

When entering the "Position" parameter mode (one blink), the solenoid will extend to its current programmed position. The up and down buttons on the solenoid control board are used to move (signal step) the solenoid to a new position. Push the **SEL** button to store this new position. The solenoid will now return to its home (retracted) position.

When entering the "Velocity" parameter programming mode (two blinks), the **ACK** LED will also blink to indicate which velocity value is currently selected (there are over ten selectable velocity values). One blink of the **ACK** LED is the fastest speed value. The more it blinks, the slower it moves. Use of the up and down buttons can change the blinking of the LED until the desired speed is reached. Pushing the **SEL** button will store your new velocity and move on to the beginning of the **PGM** mode (**MODE** LED on without blinking.)

At the beginning of the **PGM** mode (**MODE** LED on steady), it is optional to continue reprogramming the two parameters or leaving the **PGM** mode back to the **RUN** mode. To continue reprogramming, push the **SEL** button and follow the instructions above. To leave the **PGM** mode, depress and hold both the **INC** and **DEC** button until the **MODE** LED extinguishes (approximately 3 seconds). Now it returns to the **RUN** mode. Pushing the **SEL** button can now test your new motion profile. If the new motion is correct, you have completed the programming and the PPS-2 will now operate using the new stored parameters. If the motion is still not correct, re-enter the **PGM** mode and select new parameters to achieve the desired motion profile.

Customization

The parameter values available with the PPS-2 should satisfy the vast majority of applications. If your needs are specialized, a custom solenoid may be necessary. Picard Industries can customize the software for your specific application. We can scale the PPS-2 design to bigger or smaller sized motors. Please contact us to discuss your needs.

The cost of the PPS-2 unit is \$145.00 or \$135.00 for orders of 10 or more, plus additional shipping and handling.