

Free Space Variable Optical Delay Lines

(Femtosecond Resolution, up to 4000ps delay, USB/RS232 GUI)

Product Description

The Motor Driven Free Space Variable Optical Time Delay is an all-in-one module integrated with high precision optical position feed-back controller with USB/RS232 computer interface and user friendly GUI. It features micron-level high resolution, unmatched low cost, fully covered dust-free moving track, compatible with various mirrors, all degree light path adjustments, and ease in use. In operation, connecting the wall-pluggable power supply (included) and a computer via a USB cable (included) or a RS232 cable to the unit, the graphic control software (downloadable) will perform step scan in both forward and reverse direction. It also has a manual moving control knob.

The module come with a standard one year manufacture warranty.



Performance Specifications

| Parameter | | Min | Typical | Max | Unit |
|--|--------|-----------------|---------|------|------|
| Maximum Time Delay/Resolution (Accuracy) | 1466ps | | | +/-2 | μm |
| | 1800ps | | | +/-7 | |
| | 4000ps | | | +/-9 | |
| Max Speed ^[2] | 1466ps | | 20 | | mm/s |
| | 1800ps | | 20 | | |
| | 4000ps | | 20 | | |
| Durability (Life cycle) | | 10 ⁷ | | | |
| Operating Temperature | | 0 | | 70 | °C |
| Storage Temperature | | -40 | | 85 | °C |
| Mirror Size | | 1" | | | |

Electrical Connection/ Operation Instruction

1. Connect the power supply (included)
2. Connect to a computer with the USB cable (included) or a RS232 cable
3. Install Windows™ GUI software (download)
4. Click run

Features

- Low Cost
- fs Resolution
- Fast
- 4000ps Delay
- High Reliability
- Dust Cover
- Easy to Use

Applications

- Instrumentation
- Lab use

GUI

Connection: USB RS232
(Offline) (Click button to reconnect)

PHOTONWARES

Relative Delay(ps) 0 100 200 300 400 500 600 700 800 900 1000 1100 1200

Stage Position(mm) 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180

Scan Parameters

Ref 1(mm)

Ref 2(mm)

Delay Dwell Time (Sec)

Scan Step Size (mm) Repetition Times

Stage Status

Stage Position (mm)

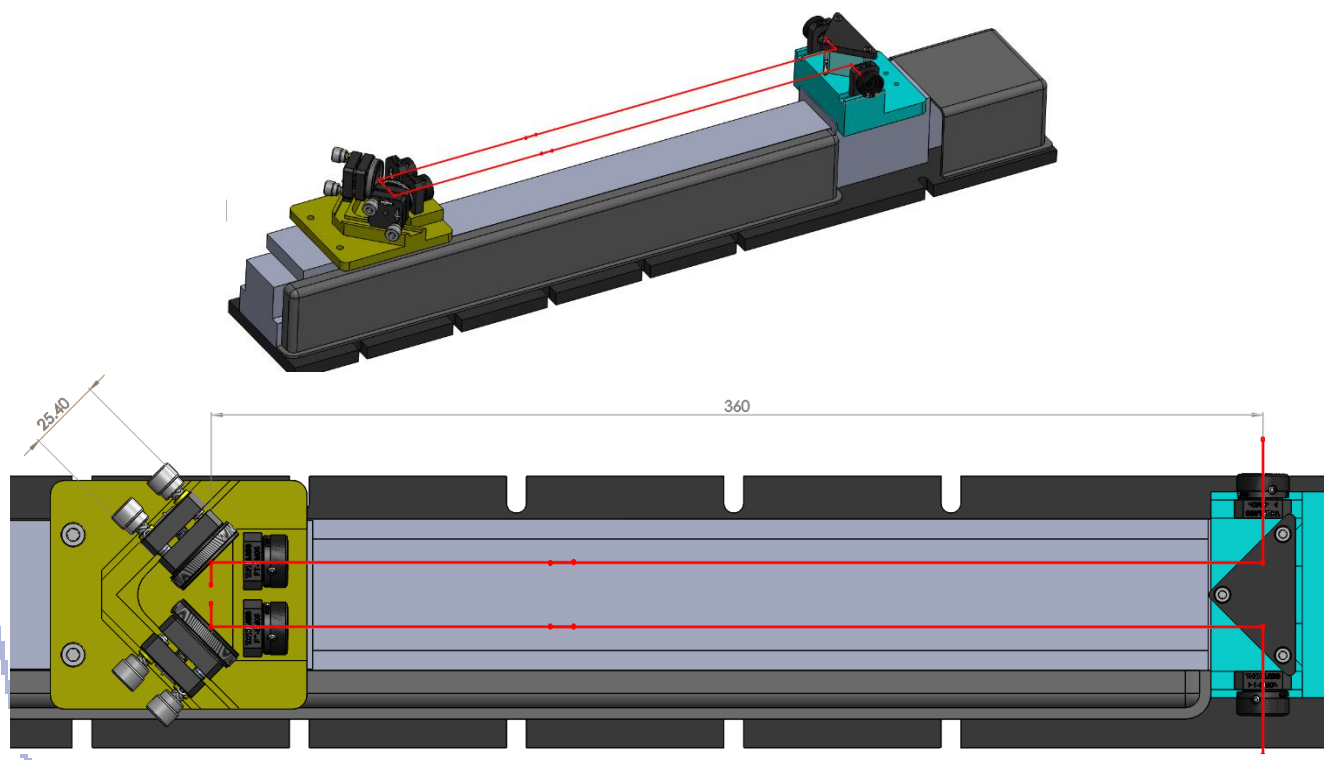
Relative Optical Delay (ps)

Manual Parameters

Units mm pSec

Move Stage (mm)

Mechanical Dimension



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Parts List To Be Included

The module come with integrated controller and all the mechanical parts shown in the picture including two Adjustable Mirror Mounts, one Angle Bracket. Optical mirror and reflection prism can also be purchased here or from other vendors.

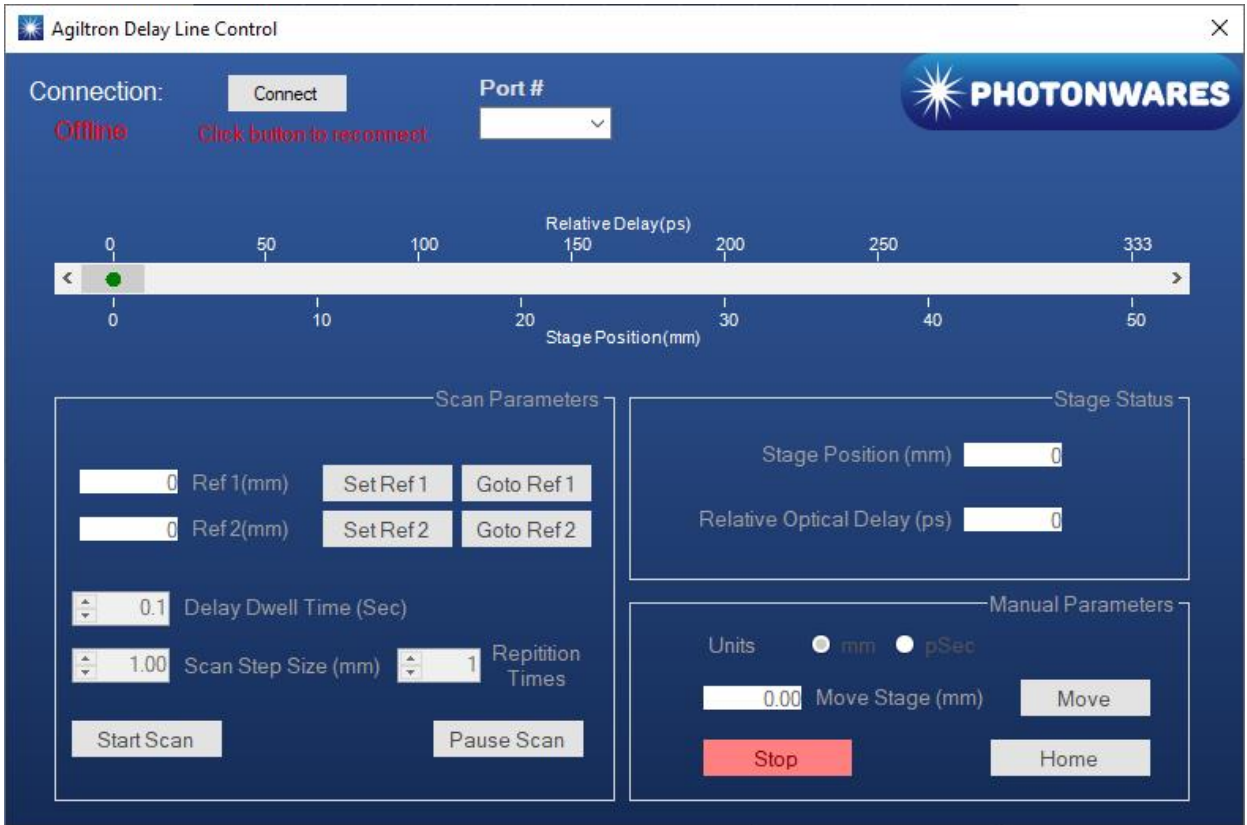
| Qty | Part Number | Description |
|-----|-------------|--|
| 2 | RFSM | Silver Mirror, 25.4 mm, $\lambda/10$, 480-20,000 nm |
| 3 | IDAA | Iris Diaphragm, 1 to 11 mm Aperture Range, 10 Leaves |
| 1 | RFGP | Glass Reflection Prism |

Ordering Information

| | 0 1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--------|----------------|---|--------------------------|-----------------------------|-----------------------------|------------------------------------|------------------------------------|------------------------------------|
| Prefix | Type | Max Delay(ps) / Length(mm) | Minimum Step | Speed | Package | Mirror | Prism | Iris |
| FSDL- | Motorized = 01 | 670ps/100mm = 1 1770ps/220mm = 2 2000ps/300mm = 3 4000ps/600mm = 4 | 8fs = 1 Special = 0 | Standard = 1 Special = 0 | Standard = 1 Special = 0 | Non = 1 1 = 2 2 = 3 3 = 4 | Non = 1 1 = 2 2 = 3 3 = 4 | Non = 1 1 = 2 2 = 3 3 = 4 |

1770ps is standard in stock item

Delay Line Control (via Windows GUI):



Control via Windows GUI:

1. Set Target Position(mm/pSec)
Simply enter the exact number of position(mm) or delay time(pSec) in the text box or drag the slider. Then, click on “Move” button to move the device to target position.
2. Homing the device
If the number is not correct, the device needs a homing calibration. Simply click on “Home” button.
3. Scan Function
Drag the slider to the target position/delay time, then click on “Set Ref x”(x = 1,2). Ref x (x = 1,2) will be set.

“Goto Ref x” Button will allow you to move the device to Ref x.

You can decide the step length for this scan and delay dwell time for each step. Repetition times can also be set. Click on “Start Scan” will start current scan process. “Pause Scan” will pause current scan, and you can resume the scan after it being paused.

Delay Line Control (via UART command (in HEX))

Control via UART command (in HEX):

The baud rate setting is 9600-N-8-1.

1. Set Motor Stage Target Position

CMD: 0x01 0x14 <Pos highest byte> <Pos higher byte> <Pos lower byte> <Pos lowest byte>

RTN: 0x01 0x14 <Pos highest byte> <Pos higher byte> <Pos lower byte> <Pos lowest byte>

Example: 0x01 0x14 0x00 0x01 0x38 0x80 -> set device to 80000 position

For 330 ps device, the position range is 0-80000. 0 means relative 0 psec. 80000 means relative 333 psec.

For 660 ps device, the position range is 0-160000. 0 means relative 0 psec, 160000 means relative 666 ps.

For 1200 ps device, the position range is 0- 288000. 0 means relative 0 psec, 288000 means relative 1200 ps.

2. Read Motor Stage Target Position

CMD: 0x01 0x15 0x00 0x00 0x00 0x00

RTN: 0x01 0x15 <Pos highest byte> <Pos higher byte> <Pos lower byte> <Pos lowest byte>

3. Check Motor Stage Current Position

CMD: 0x01 0x16 0x00 0x00 0x00 0x00

RTN: 0x01 0x16 <CurP highest byte> <CurP higher byte> <CurP lower byte> <CurP lowest byte>

4. Homing Calibration

CMD: 0x01 0x20 0x00 0x00 0x00 0x00

RTN: 0x01 0x20 0x00 0x00 0x00 0x00

5. Check Homing Status

CMD: 0x01 0x21 0x00 0x00 0x00 0x00

RTN: 0x01 0x21 0x00 0x00 0x00 <Status Byte>

<Status Byte>: 0 - Homing complete, 1 - Homing incomplete