

Fiber Optic MEMS-1xN Switch Evaluation Kit

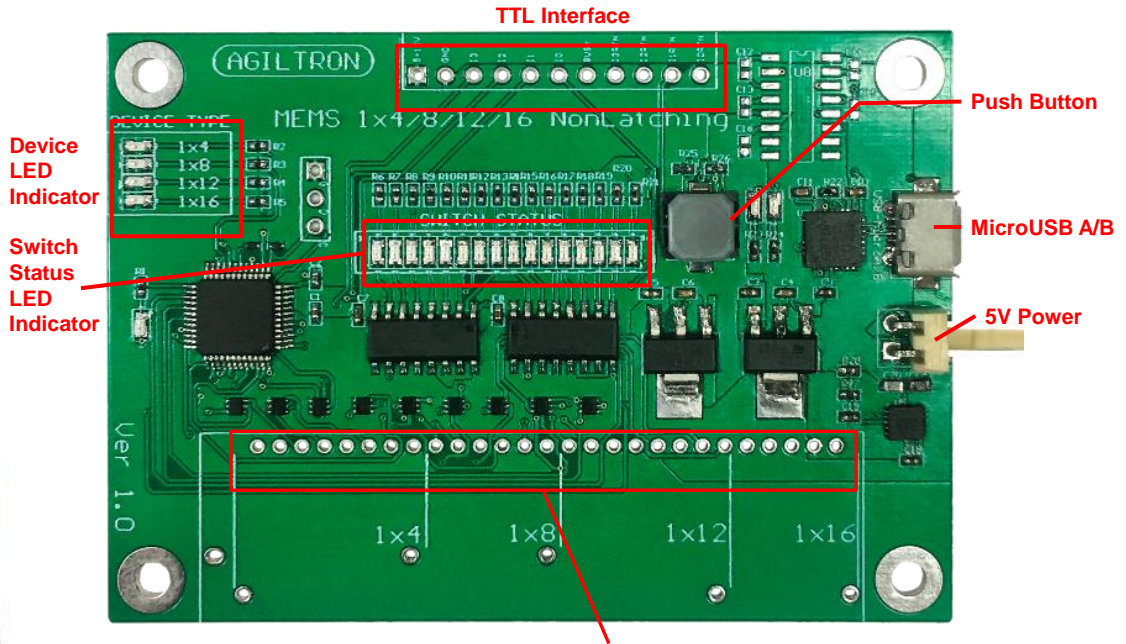
Push Button/TTL/USB or RS232

Product Description

The MS-DR-1 evaluation kit is compatible with MEMS 1x4/1x8/1x12/1x16 switches. It has three control modes: manual push button; TTL; USB or RS232 with a user-friendly GUI Windows™ program supporting UART commands. It is intended for convenient laboratory use or switch performance evaluation. The unit has a mini USB connector with a USB-to-MicroUSB cable or a special RS232-to-MicroUSB cable to support RS232 connection. It can be powered by 5V power supply. It is a cost-effective solution for ease of using our switches.

Features

- USB
- RS232
- Push Button
- TTL
- GUI



Compatibility

MEMS-1x4, 1x8, 1x12 & 1x16

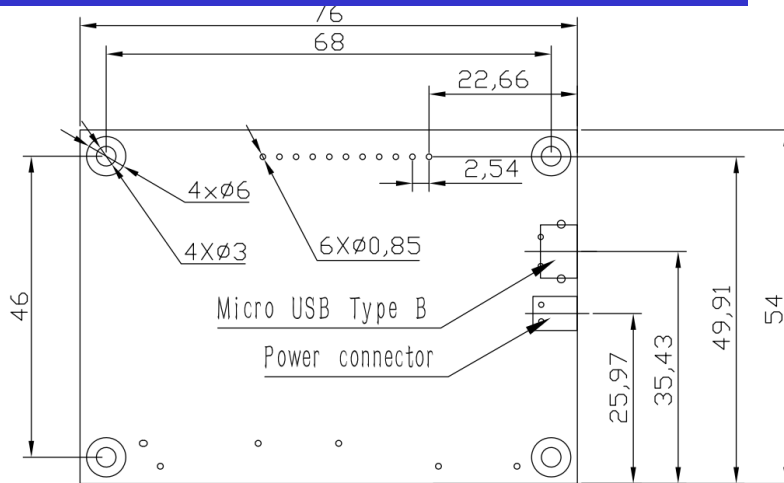
Electrical Specifications

Parameter	Min	Typ	Max	Units
Operating Temperature	-10	--	70	°C
Storage Temperature	-40	--	85	°C
Voltage	--	5.0	5.5	V

Warning: Control Signal >5.5V Will Damage the Board

Warning: This device must use the reference circuit to driver otherwise it is unstable.

Mechanical Dimension



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

Manual Operation Instruction

- Power the Board**

The unit can be powered up via the USB cable to a computer or a wall plug or a 5V power supply.

- Manual Push Button Control**

When the Push Button is pressed shortly (less than 4s), the status of switch would roll among all its available status. For example, when the switch is at status 1 (Input 1 -> Output 2) and the Push Button is pressed, the switch would change to status 2.

When the Push Button is long pressed (more than 4s), the device type would change. The device type would be saved and only need to be changed once.

TTL Operation Instruction L<0.8V H>3.5V

- TTL Interface Definition**

Definition of TTL holes from left to right:

Name	Direction	Description
5V	Power	The driver board can also be powered up via these two holes.
GND	Ground	
I3	Input	I0-I3 denotes the input status of switch. Up to 16 different statuses are available for this driver board. I3 is the highest bit of input status, while I0 is the lowest one. For example, I3 -> 0, I2 -> 0, I1 -> 0, I0 -> 1, change to status 2. I3 -> 1, I2 -> 1, I1 -> 1, I0 -> 1, change to status 16.
I2	Input	
I1	Input	
I0	Input	
BUSY	Output	When the driver is taking action, BUSY would be set to 1, while 0 when idle.
I3RTN	Output	I0RTN-I3RTN can be used to read current switch status. I3RTN is the highest bit, while I0RTN is the lowest one.
I2RTN	Output	
I1RTN	Output	
I0RTN	Output	

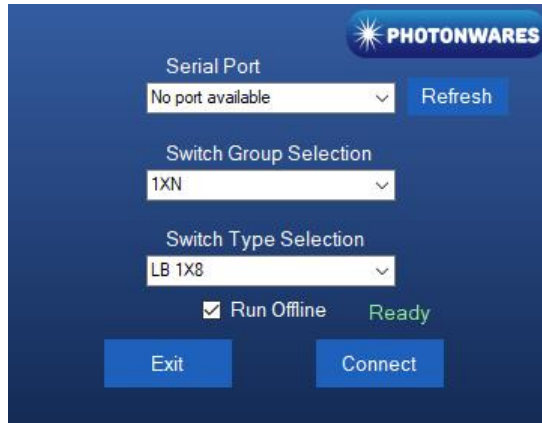
Computer Graphic Software User Guide

- **Install the Program**

Click on setup.exe for the automatic installation, which should be provided with the product.

- **Run the Program**

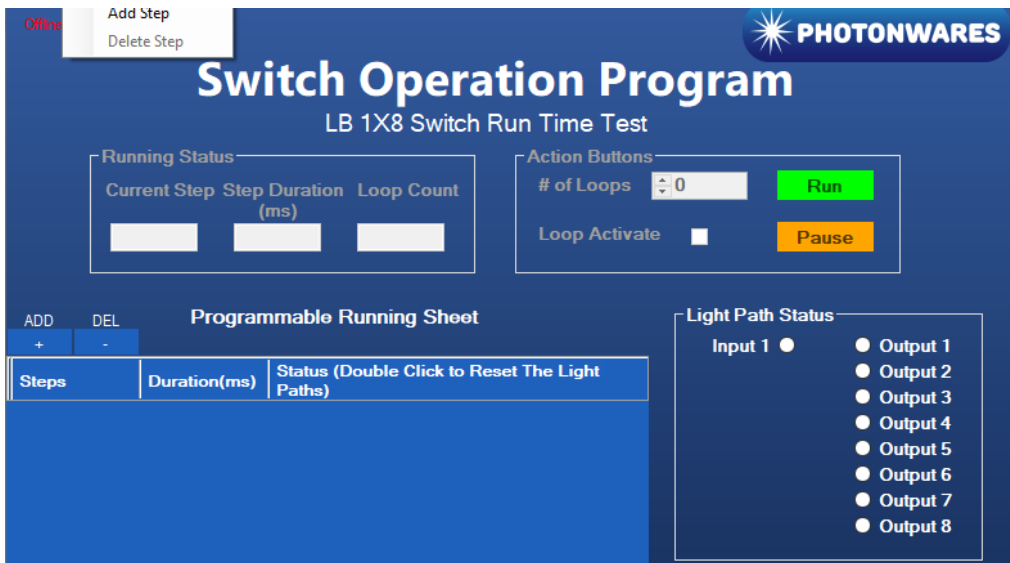
Run the “Switch Operation Program.exe” and the program will open the configuration window. Select the correct Switch Group and select the specific Switch Type. Then click the “Connect” button and the program will establish the connection between PC and board.



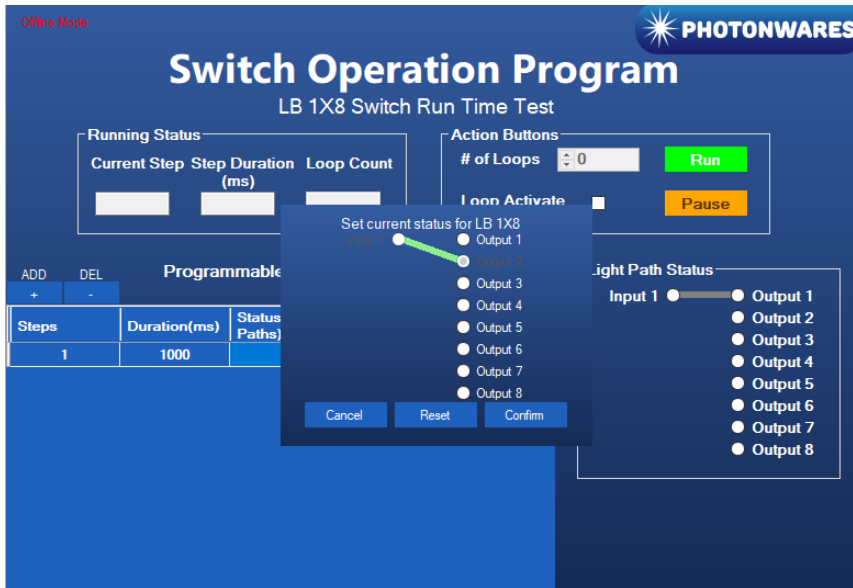
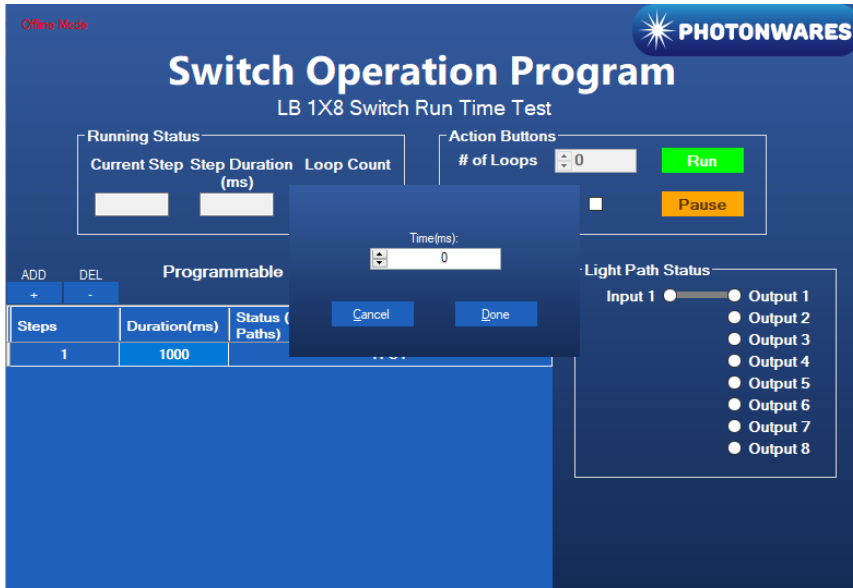
- **Create and edit testing time sequence**

Add step: Click the “Add Step” button in the menu strip or click the “+(ADD)” button would both add a step to the Programmable Running Sheet.

Delete step: Click the “Delete Step” button in the menu strip or click the “-(DEL)” button would both delete a step in the Programmable Running Sheet.



Edit step: There are two things that you can modify for one step. One is the light path, and the other is the duration for each step. Double click the cell that you want to modify, and the program will allow you to modify the setting.



Computer Interface Options

This driver is intended as an open source version for customer to write their own control software. The USB interface works as a Virtual COM port which is compatible with LabView, Matlab. We provide LabView and Matlab interface software at extra cost.

A Windows GUI and UART command list will be provided for test and software development.

Command List

The serial communication should be set in **9600 baud rate, none parity, 8 data bits, 1 stop bits.**

Command in **HEX**:

0x01 0x12 0x00 0x01 ---- Switch to status 1
 0x01 0x12 0x00 0x02 ---- Switch to status 2
 0x01 0x12 0x00 0x03 ---- Switch to status 3
 0x01 0x12 0x00 0x04 ---- Switch to status 4

In **Matlab**,

Example code as below:

```
s = serialport("COM1", 9600, "Timeout", 5);
Write(s, [1, 18, 0, 1], "uint8");           for status 1
Write(s, [1, 18, 0, 2], "uint8");           for status 2
```

Ordering Information

Prefix	Switch	Function	Pluggable Pins	Power	Switch Type	Control Mode
MSDR-	<input type="checkbox"/> <input type="checkbox"/> 1x2=A2 1x4=A4 1x5=A5 1x10=10 1x12=12 1x16=16	1 1	<input type="checkbox"/> No = 1 (solder) Yes = 2	1 5V	1 MEMS	<input type="checkbox"/> USB + TTL + Push-Button = 1 RS232 + TTL + PushButton = 2

* Pluggable Pins are for temporary making contacts between the PCB and the optical switches. This function adds \$120