General Optical Switch Driver

CL, LB, 1D MEMS, FFSW

DATASHEET

Return to the Webpage

The SW-DR-2 fiber optical switch driver provides a cost-effective solution for operating Agiltron's optical switches, including CrystaLatch (CL), LightBend (LB), 1DMEMS, and Fiber-Fiber (FF) models, with support for up to 15 activation points to control multiple switches simultaneously. It consist of a two-board stack design, with a switch-specific daughter board and a universal main control board, pre-programmed for each order. The unit supports RS232, USB, and TTL interfaces via the J3 connector, with automatic interface detection between RS232 and USB (only one can be connected at a time). Supplied as a complete kit with a Windows GUI (on USB), power supply, and interface cable, the SW-DR-2 is factory-configured and not intended for customer-side switch installation due to system complexity. Mounting is done by replacing the bottom screws with longer ones to secure the unit to the customer's mounting plate.

Features

- USB, RS232, & TTL
- Flexible configuration
- User-friendly GUI

Specifications

Parameter	Min	Normal	Max	Unit
Control Channels	1		8	
Output Switching Voltage [1]	4.75	5	5.25	V
Switching Current [2]			2.0	A
Output Pulse Width [3]	0.1		3.0	ms
Power Supply Voltage [4]	11.7	12	12.3*	V
Power Consumption (No Switching) [5]			0.25	W
USB/RS232 [6]				V
TTL Interface [7]	TTL Logic L<0.8V H>3.5V			
Electrical Connector Type	Male AMP 103309-2 or equivalent			
Board Dimension	(L)100mm x (W)60mm x (H)15mm			

Notes:

[1]. Pulse width output, through J3
[2]. Total switching current, continuous
[3]. Pulse duration adjustable by firmware
[4]. Input power supply through J2
[5]. Hot pluggable. <1.5A inrush current
[6]. Using J7 to select USB or RS232
[7]. Through J4

*** Over this value will damage the device**

Warning: Control Signal >5.5V Will Damage the Board

Warning: The unit is ESD sensitive, do not touch the PCB by hands

Compatibility

- NxM CrystaLatch™ Switches (N=1,2 M□8; N=4, M=4)
- NxM LightBend™ Switches (N=1,2 M□8; N=4, M=4)
- Multi-functional electronic control

RoHS COMPLIANT

Rev 02/21/26

P +1 781-935-1200 E sales@agiltron.com W www.agiltron.com

General Optical Switch Driver

CL, LB, 1D MEMS, FFSW

DATASHEET

Control Mode - USB

Plug in the USB and upload the supplied GUI Windows™-compatible software to run

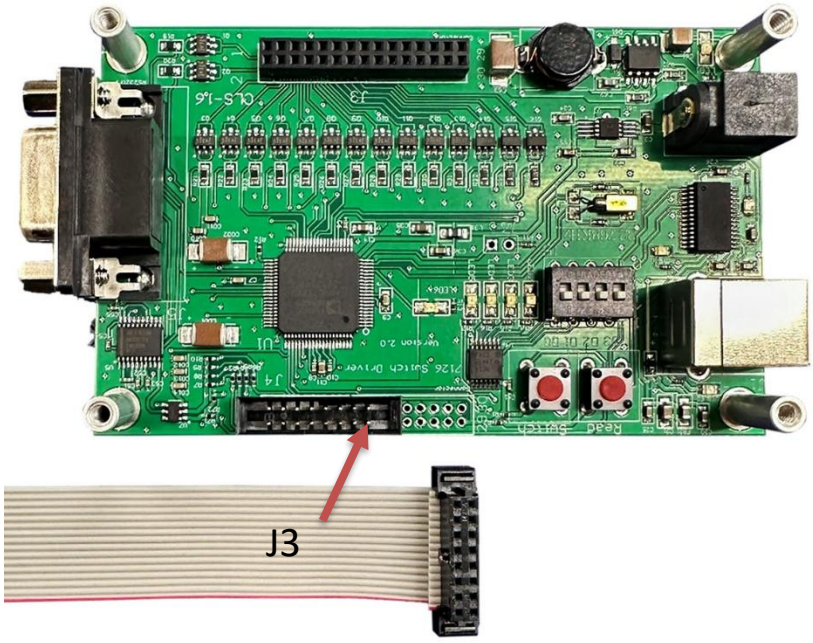
Control Mode - RS232

To operate via RS232, plug in the RS232 cable and launch the supplied Windows™-compatible GUI software. Important: The USB cable must be unplugged for RS232 communication to function properly. The system uses an automatic switching chip that selects the control mode based on the connected cable—only one interface can be active at a time. RS232 Communication Settings: Baud rate: 9600Data bits: 8Parity: None

Control Mode - TTL

Connector J4 enables TTL control of the switch system. It is a 12-pin interface, with pin definitions detailed in the table below. Pins 3 (D1) to 6 (D4) are used to set the switch status in binary format (0 or 1 logic). The cycle time is a time for the switch to finish a cycle. It is the switch voltage pulse width. You can find the date of the voltage pulse width from the switch datasheet or from our Web page. The cycle time is a time for the READ only to finish an active of the read data. A compatible ribbon cable is available to connect this interface to a customer PCB with matching pinout.

- TTL Signal Levels: Logic Low (Lo): < 0.3 VLogic High (Hi): 3.1 V to 5 V
- PCB Connector: Digi-Key Part Number S9020-ND
- Mating Ribbon Cable Connector: Digi-Key Part Number WM14316-ND



General Optical Switch Driver

CL, LB, 1D MEMS, FFSW

DATASHEET

Pin #	Symbol	I/O	Description
1	+5V	Out	+5V power supply
2	GND		Power supply ground
3	D1	I/O	Switch status (least significant bit)
4	D2	I/O	Switch status
5	D3	I/O	Switch status
6	D4	I/O	Switch status (most significant bit)
7	NC		No Connect
8	NC		No Connect
9	SWITCH	In	High to low transition triggers switching and then go to high
10	READ	In	High to low transition triggers reading Keeps at low 15 µs and then to go to high.
11	BUSY	Out	BUSY goes from high to low within 5µs at SWITCH/READ trigger. Then it goes from low to high at completion of a cycle time*.
12	NC		No Connect
13	Tx	Out	Tx of RS232 (LVTTL)
14	Rx	In	Rx of RS232 (LVTTL)
15	GND		Power supply ground
16	+5V	Out	+5V Power Supply

Example of TTL Control Logic

Switch		TTL			
CL 1x2 Switch Device:		D4	D3	D2	D1
	Status 1	0	0	0	0
	Status 2	0	0	0	1
CL 1x4 Switch Device:		D4	D3	D2	D1
	Status 1	0	0	0	0
	Status 2	0	0	0	1
	Status 3	0	0	1	0
	Status 4	0	0	1	1
CL 1x8 Switch Device:		D4	D3	D2	D1
	Status 1	0	0	0	0
	Status 2	0	0	0	1
	Status 3	0	0	1	0
	Status 4	0	0	1	1
	Status 5	0	1	0	0
	Status 6	0	1	0	1
	Status 7	0	1	1	0
	Status 8	0	1	1	1
CL 1x16 Switch Device:		D4	D3	D2	D1
	Status 1	0	0	0	0
	Status 2	0	0	0	1
	Status 3	0	0	1	0
	Status 4	0	0	1	1
	Status 5	0	1	0	0
	Status 6	0	1	0	1
	Status 7	0	1	1	0
	Status 8	0	1	1	1
	Status 9	1	0	0	0
	Status 10	1	0	0	1
	Status 11	1	0	1	0
	Status 12	1	0	1	1
	Status 13	1	1	0	0
	Status 14	1	1	0	1
	Status 15	1	1	1	0
	Status 16	1	1	1	1

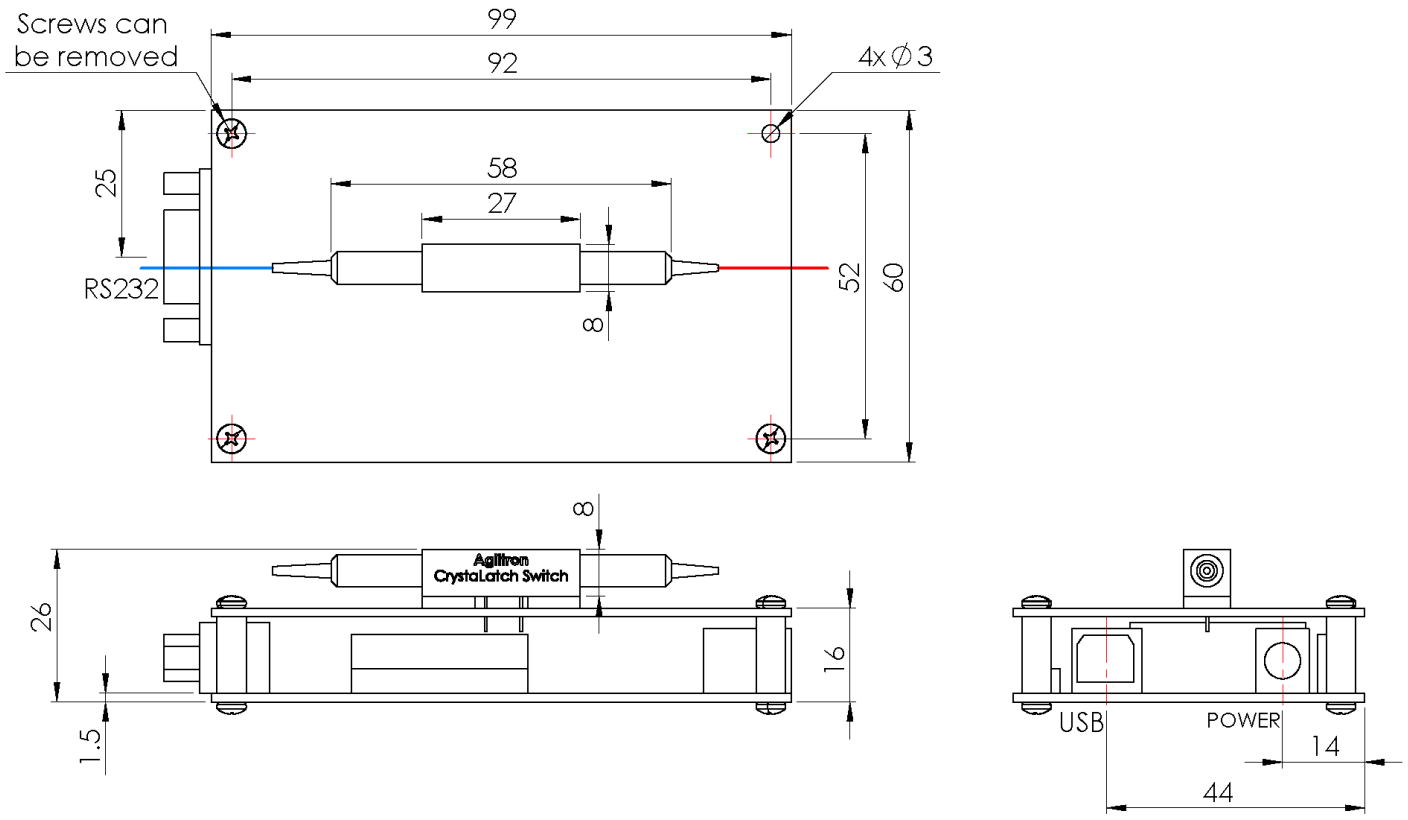
General Optical Switch Driver

CL, LB, 1D MEMS, FFSW

DATASHEET

Mechanical Dimensions

Note: The device is secured using 8 screws attached to 4 tapped supports—2 from each end. The bottom screws can be removed to allow mounting through a user-provided plate, enabling secure installation by passing mounting screws through the plate into the tapped supports.



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

Operation Instruction

1. Plug in the accompanied power supply.
2. Load the accompanied GUI into a computer
3. Connect the computer to the board using the accompanied cable
4. Run the software
5. Do not change any hardware setting that requires costly rest at the company

P +1 781-935-1200 E sales@agiltron.com W www.agiltron.com

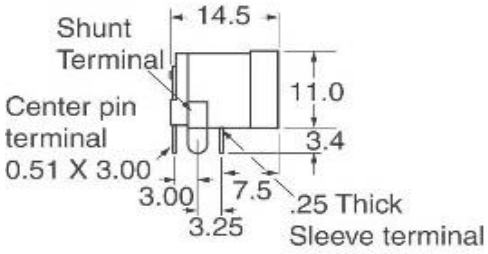
General Optical Switch Driver

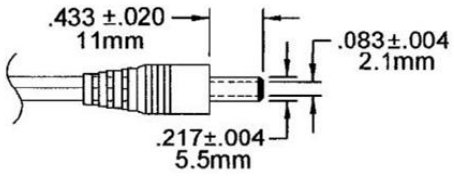
CL, LB, 1D MEMS, FFSW

DATASHEET

Power Connector

Power Barrel Connector Jack 2.00mm ID (0.079"), 5.50mm OD (0.217") Through Hole, Right Angle





12V Wall Plug DC Power Supply Interface

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

Ordering Information (Part Number)

	☐	☐☐	☐	☐	☐	☐	☐	☐
Prefix	**Switch Type**	**Function**	**Latching**	**Repeat Rate [1]**	**Footprint**	**# of Switch[2]**	**Control Mode**	**DC supply**
SWDR-	FF switch = 1 CL switch = 2 LB switch = 3 1D MEMS switch = 4 Delayline LB = 6 Delayline CL = 7 Delayline MEMS = 8	1x1 = 1a 1x2 = 2a 2x1 = 2b 2x2 = 2c 1x4 = 4a 4x1 = 4b ... 1x9 = 9a 9x1 = 9b 9x9 = 9c 1x10 = 10 ... 1x99 = 99 Special = 00	Latching = 1 Non-latching = 2	2Hz = 4 5Hz = 5 20Hz = 1 2kHz (CL) = 2	Standard = 1 Octo switch = 2 Special = 0	1 switch = 1 2 switches = 2 3 switches = 3 N switches = N Special = 0	TTL = 1 USB = 2 RS232 = 3 Special = 0	12VDC = 1 Special = 0

[1]: LB, MEMS,FF all limited to 2Hz. 2KHz requires Windows 10 computer.

[2]: Up to 16 1x2/2x2 switches. Optically connecting these switches via splicing is available

Note:

- ❑ This driver is intended mounted with specific switches, tuned, and tested prior to shipping. It is not designed to be sold separately.

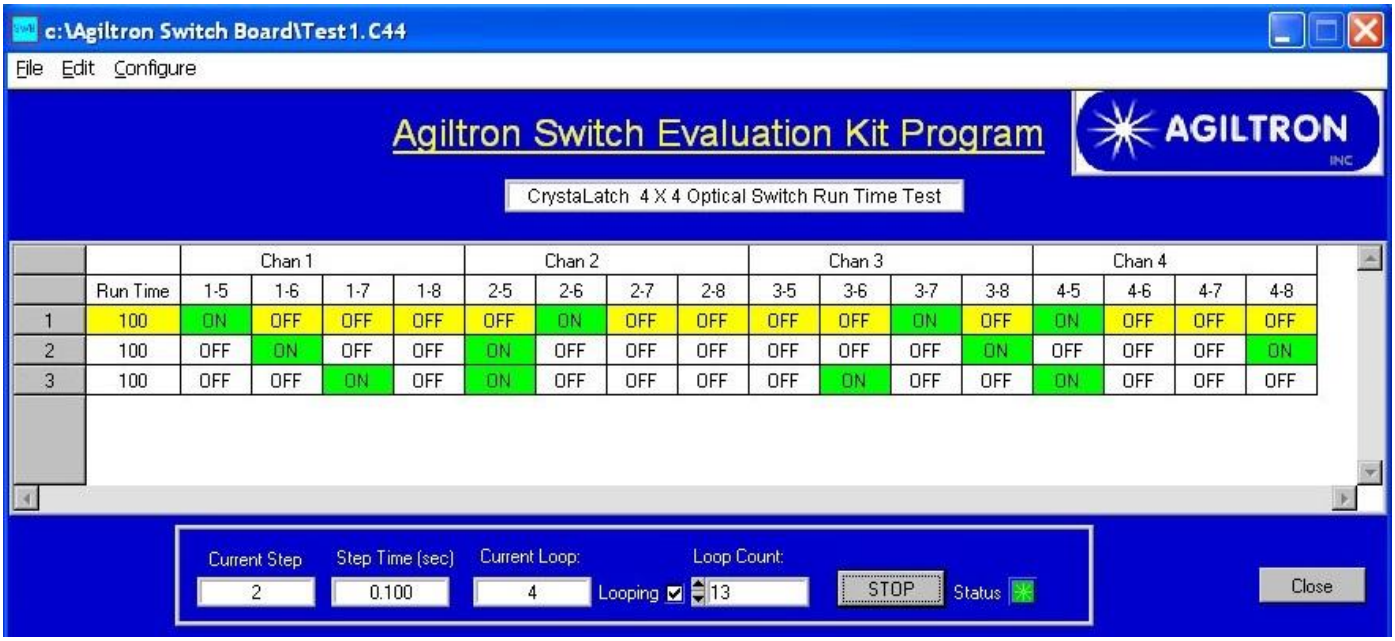
P +1 781-935-1200 E sales@agiltron.com W www.agiltron.com

General Optical Switch Driver

CL, LB, 1D MEMS, FFSW

DATASHEET

GUI Example (4x4)



Command List

Table 1: RS232 Command/Response Format

Command:	<Addr>	<Code>	<Dx>	<Dy>
Response:	<Addr>	<Code>	<Dx>	<Dy>

<Addr>	Module Address: 0 for all modules and 1-255 for specified module. Default:1
<Code>	Control Code: Refer to Command Code Table
<Dx>	One byte data, high byte
<Dy>	One byte data, low byte

Table 2: RS232 Command Code Table

Description			
Read Module Address	Address = <Dx> <Dy>		
Set Module Address	<Dx> <Dy> = 1 ~ 255		
Read Module Serial Number (Higher 2 Bytes)	S/N (Higher 2 Bytes) = <Dx> <Dy>		
Read Module Serial Number (Lower 2 Bytes)	S/N (Lower 2 Bytes) = <Dx> <Dy>		
Read Module Type	Type = <Dx> <Dy> (m ´ n switch: n ¾ first two digits from left; m ¾ third and fourth digit from left)		
Read Module Version	Hardware Version = <Dx> / 10; Firmware Version = <Dy> / 10		
Read Switch Status	N = <Dx><Dy> ($D_4D_3D_2D_1D_0$ = N-1)		
Set Switch to Status N (N = $D_4D_3D_2D_1D_0$+1, 1£N<£32)	<Dx><Dy> = N		
Read Individual Switch Status	Status = <Dx><Dy>.	Bit-M: 0 ¾ Switch (M+1) L Position; 1 ¾ Switch (M+1) U Position;	
Set Individual Switch Positions	<Dx><Dy>	Bit-M: 0 ¾ Switch (M+1) L Position; 1 ¾ Switch (M+1) U Position;	
Read Module Alarm	Normal: <Dx> <Dy> = 0	Temperature Alarm: [Bit-0 of <Dx> <Dy>] = 1	Power Supply Alarm: [Bit-1 of <Dx> <Dy>] = 1
Read Module Temperature	T(°C) = <Dx> <Dy> / 10		
Read Power Supply Voltage	V(mV) = <Dx> <Dy>		
Read Low Temperature Alarm Threshold	T(°C) = <Dx> <Dy> / 10		
Set Low Temperature Alarm Threshold	<Dx> <Dy> = 10 ´ T(°C)		
Read High Temperature Alarm Threshold	T(°C) = <Dx> <Dy> / 10		
Set High Temperature Alarm Threshold	<Dx> <Dy> = 10 ´ T(°C)		

P +1 781-935-1200 E sales@agiltron.com W www.agiltron.com