## Description

XH-OSW-1X4 optical switch is an optical path control device, which has the role of controlling the optical path and converting the optical path. It has an important role in optical communication applications. The optical switch is mainly used in optical transmission system for multiple optical monitoring, LAN multisource/detector automatic switching and optical sensing multi-point dynamic monitoring system optical test system for optical fiber, optical devices, network and field engineering optical cable testing; optical device installation and adjustment.

## Features

- Low insertion loss, wide wavelength range
- Low channel crosstalk, high stability, high reliability
- Proprietary technology, no glue in the optical path
-Locking and non-locking control types are available


## Performance

| Parameter | Parameter Values |  |
| :---: | :---: | :---: |
| Model | XH-OSW-1XN |  |
| Insertion Loss | $1<\mathrm{N} \leq 16$ |  |
|  | Typ : 0.5 dB Max : 1.0 dB |  |
| Wavelength Range | 532~1064 nm | $1260 \sim 1650 \mathrm{~nm}$ |
| Wavelength Testing | 532/650/780/850/980 nm | 1310/1490/1550/1625 nm |
| Return Loss | $\mathrm{MM} \geq 30 \quad \mathrm{SM} \geq 50$ |  |
| Crosstalk | $\mathrm{MM} \geq 70 \quad \mathrm{SM} \geq 70$ |  |
| PDL | $\leq 0.05 \mathrm{~dB}$ |  |
| WDL | $\leq 0.25 \mathrm{~dB}$ |  |
| TDL | $\leq 0.25 \mathrm{~dB}$ |  |
| Repeatability | $\leq 0.02 \mathrm{~dB}$ |  |
| Lifetime | $\geq 10^{7}$ |  |
| Switching Time | $\leq 8 \mathrm{~ms}$ |  |
| Transmission Power | $\leq 500 \mathrm{~mW}$ |  |
| Connector | FC, LC, SC, ST |  |
| Control | TTL |  |
| Operating Voltage | 5 V |  |
| Working Current | 500 mA |  |
| Operating Temperature | $-20 \sim+70$ |  |
| Storage Temperature | $-40 \sim+85$ |  |

## Dimensions



## Optical Route



Pins

| DB9 male connector |  |  |  |
| :---: | :---: | :---: | :---: |
| Pins | Type | Name | Functions |
| 1 | Input | D0 | D3~D0 are the channel selection data bits, D3 is the high bit, D0 is the low bit |
| 2 | Input | D1 |  |
| 3 | Input | D2 |  |
| 4 | Input | D3 |  |
| 5 | Input | RESET | low level indicates that the channel is reset, and a high level indicates that the data bits are active. |
| 6 | Out | READY | low level indicates that the optical switch channel switching is completed, and a high level indicates that the optical switch channel is switching. |
| 7 | Out | ERROR | low level indicates that the optical switch is operating normally, and a high level indicates that the optical switch channel selection data bit signal is overflowing or there is a fault inside the optical switch. |
| 8 | Power | GND | Power supply ground |
| 9 | Power | VCC | Positive power supply |

## Control Schematic

Host controller


Power supply


## Control timing diagram



## Control Logic Table

| Channel | D0 | D1 | D2 | D3 | RESET |
| :---: | :---: | :---: | :---: | :---: | :---: |
| COM-0 | x | x | x | x | 0 |
| COM-1 | 0 | 0 | 0 | 0 | 1 |
| COM-2 | 1 | 0 | 0 | 0 | 1 |
| COM-3 | 0 | 1 | 0 | 0 | 1 |
| $\ldots$ |  |  |  |  | 1 |
| COM-14 | 1 | 0 | 1 | 1 | 1 |
| COM-15 | 0 | 1 | 1 | 1 | 1 |
| COM-16 | 1 | 1 | 1 | 1 | 1 |

*0 represents low level 0 V , 1 represents high level 5 V , the module has internal 5 V pull-up resistor to support 3.3 V microcontroller chip pin control.
Ordering Information : XH-OSW-1XN-A-B-C-D-E

| Channel(N) | Wavelength(A) | Fiber Type(B) | Fiber <br> Diameter(C) | Fiber Length (D) | Connector(E) |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $\mathrm{N}: \leq 16$ | $850: 850 \mathrm{~nm}$ | SM:SM,9/125 | $25:: 250 \mathrm{um}$ | $05: 0.5 \mathrm{~m}$ | OO:None |
|  | $1310: 1310 \mathrm{~nm}$ | M5:MM,50/125 | $90: 900 \mathrm{um}$ | $10: 1.0 \mathrm{~m}$ | FP: FC/PC |
|  | $1550: 1550 \mathrm{~nm}$ | M6:MM,62.5/12 | $200: 200 \mathrm{um}$ | $15: 1.5 \mathrm{~m}$ | FA: FC/APC |
|  | $1310 / 1550: 1310$ | 5 | X:Others | X:Others | SP: SC/PC |
|  | $n \mathrm{~nm} / 1550 \mathrm{~nm}$ | HI1060:HI1060 |  |  | SA: SC/APC |
|  | X:Others | X:Others |  |  | LP: LC/PC |
|  |  |  |  |  | LA: LC/APC |
|  |  |  |  |  |  |

