

D&T Photonics Inc

Optical Matrix Switches (WOS-4)



OVERVIEW FOR PRODUCTS AND RELATED TECHNOLOGY

All-optical switches, together with other central photonic components, such as optical splitters, multi/demultiplexers, tunable filters, and attenuators, are key factors in creating and improving a ubiquitous society of photonic networks. Thus, this kind of popular optical networks forms a new technological field-WDM integrated passive optical network (WDM-PON). Silica-based planar lightwave circuits (PLCs) are promising technologies and have provided all above photonic components for practical networks because of their compactness, mass-production, high reliability, and matching compatibility with fiber-based signal lines. WOS-4 covers a series of switches from 1x4 to 4x4 matrix switches.

FEATURES

Reliable Silica-based PLC technology and advanced device structure, resulting in

- 1) High performance, including low insertion loss and power consumption, and compact device size;
- 2) Flexible and extendable applications for users because of multicasting/broadcasting of system;
- 3) Fast switching speed; and
- 4) Bi-directional switching.

KEY APPLICATIONS

- 1) In mass measurements of optical instruments

Save signal sources and detectors shorten measurement period, improve measurement reliability---an Nx4 (N=1, 2, 3, 4) matrix optical switch is connected between several different signal sources and multiple tested optical instruments and an 4x4 matrix optical switch is connected between multiple tested optical instruments and several different signal detectors, the measurements for all the important optical parameters of the multiple optical instruments can be completed with programmable control.

- 2) In medium-scale re-configurable WDM integrated passive optical networks (WDM-PONs) for the broad applications, including optical intelligent communications, optical sensing systems and optical information processing systems.

- 3) Dynamically re-configurable OADM

In optical telecommunication systems, the optical ADD/DROP multiplexing (OADM) is a popular operation, while after some de-multiplexed optical signals are dropped out from system or before some de-multiplexed optical signals are added into system, the Nx4 matrix optical switches must be deployed to implement the communications between the users and the system.

4) Video or image switching

In the multi-media systems, the various videos or images need to communicate among different monitors or observers. These videos and images can be photo-taken, sensed or information-processed. These actions can be performed in hospitals, engineering meeting halls or other cases. This application is very promising and potential in the future medium-scale collaborations in industries.

5) Automated fiber management (AFM)

The AFM is a new area of modern fiber industrial systems as fiber optics and technology are widely employed in both industry and life.

Specifications

Items	Typical values
Product Scale	From 1x4 to 4x4 single
Dimension (mm)	180x40x20 mm
Working Wavelength	C-band
Insertion Loss (IL)	< 1.5 dB
IL Uniformity	0.2 dB
Crosstalk	-35 dB
Polarization Dependent Loss (PDL)	< 0.3 dB
Switching Time	< 1 ms
Return Loss	-40 dB
Electrical Power Dissipation	< 0.9W/Switch
Wavelength Dependent Loss (WDL)	< 0.3 dB

Selected measurement data

