

Digital Programmable CircuitsSingle Mode Switching

Single Mode Switches are primarily used in the telecommunication field and network technology as well as to connect several light sources with one detector or one source with several detectors.

The drawback of these types of switches is the limited wavelength operation range. Below this range they function similarly to multimode switches, while above this range they suffer from prohibitively high transmission losses.

Interface-

High finesse offers the single mode switches with a standard TTL.

## UNIT-3rd

### ① Single Mode Switching

In the P-State of Single Mode Switching all the switches are opened (closed) except  $S_k$  which is closed (opened). In the F-State,  $S_k$  will be opened (closed) &  $S_{k+1}$  will be closed (opened). It means in any state, one and only switch is closed (opened). Thus, the useful states of the  $n$ -bit signal should be

$$2^{n-1} 2^{n-2} \dots 2^2 2^1 2^0 = 00\dots 010\dots 000$$

(11\dots 101\dots 111). To realize  $N$  values of corresponding to  $k=1, 2, \dots, N$

We need  $N$  such states. Thus, the minimum value of  $n$  is  $N$ . An  $N$ -bit control signal

can operate  $N$  switches, each one by independent bit. Thus the minimum number of switches required to realize  $N$  values of  $C$  is  $N$