

CONSIDERATIONS FOR FIBER-BASED KVM EXTENSION

If you're sending KVM signals between buildings for an extended distance, in areas supplied by different power sources, in an electrically noisy environment, or where data security is a big concern, you need to use a fiber optic-based KVM extender.

Optical fiber is an ideal transmission medium not only for backbone and horizontal connection, but also for workstation-to-back racked CPU or server links. It works very well in applications where you need to transfer large, bandwidth-consuming data files over long distances, and where you require immunity from electrical interference or data theft.



ServSwitch Brand Fiber KVM Extender, II-SM (Single-Mode)

Before selecting a fiber-based KVM extender, it's important to know the limitations of your system. You need to know where the couplers, links,

interconnect equipment, and other devices are going to be placed. If it's a longer run, you have to determine whether multimode or single-mode fiber cable is needed.

The most important consideration in planning cabling for fiber-based KVM extension is the power budget specification of device connection. The receiver at the remote end has to receive the light signal at a certain level. This value, called the loss budget, tells you the amount of loss in decibels (dB) that can be present in the link between the two devices before the units fail to perform properly.

Specifically, this value takes the fiber type (multimode or single-mode) wavelength you intend to use—and the amount of expected in-line attenuation—into consideration. This is the decrease of signal strength as it travels through the fiber cable. In the budget loss calculation, you also have to account for splices, patch panels, and connectors, where additional dBs may be lost in the entire end-to-end fiber extension. If the measured loss is less than the number calculated by your loss budget, your installation is good.

Testers are available to determine if the fiber cabling supports your intended application. You can measure how much light is going to the other end of the cable. Generally, these testers give you the results in dB lost, which you then compare to the loss budget to determine your link loss margin.

Also, in some instances, particularly when using single-mode fiber to drive the signal farther, the signal may be too strong between connected devices. This causes the light signal to reflect back down the fiber cable, which can corrupt data, result in a faulty transmission, and even damage equipment. To prevent this, use fiber attenuators. They are used with single-mode fiber optic devices and cable to filter the strength of the fiber optic signal from the transmitter's LED output so it doesn't overwhelm the receiver. Depending on the type of attenuator attached to the devices at each end of the line, you can diminish the strength of the light signal a variable amount by a certain number of decibels.

Source: <https://bboxblog.wordpress.com/2011/06/17/considerations-for-fiber-based-kvm-extension/>