

Video DynaSync™

A Key Technology for Switched Sharing of Modern Monitors

Introduction

KVM (Keyboard-Video monitor-Mouse) switches, first developed almost 2 decades ago, allow you to share a monitor, keyboard and mouse to control a few or even thousands of computers in offices and large data centers. In recent years the nature of the monitor itself and of the video electronics in the computers have significantly changed from typical VGA video outputs and CRT monitors to mostly LCD monitors and a variety of video formats such as DVI and HDMI. Many video outputs and monitors now use a technology called EDID (*Extended Display Identification Data*) that's intended to save time while optimizing the video. An increasing number of computers and digital peripherals are also equipped with HDCP (*High-bandwidth Digital Content Protection*) which is intended to discourage unauthorized copying of protected programming material.

EDID and HDCP are implemented by storing pertinent information on a chip in the monitor, which information is then communicated to the computer to which the monitor is connected via a "DDC" wire in the video cable. This automatic "handshake" between the computer's video output and its EDID- and/or HDCP-equipped monitor occurs when the computer is connected to the monitor and booted up; the computer video card reads the monitor's data and formats its video output with the proper horizontal and vertical resolution and frequency to drive that monitor.

The EDID (and HDCP for that matter) was conceived for one-computer-to-one monitor systems. It instantly ensures that the monitor is driven with a signal that is optimum for its pixel locations and within its displayable bandwidth, saving the operator time (no need to go to the Display Control Panel or Properties to figure out how to set the H xV pixel and the Hz values).

Unfortunately, problems can develop when certain KVM switches are used with EDID/HDCP monitors and video outputs because the automatic boot-up handshake may fail to occur or may be broken when the display is switched among computers, thus frustrating legitimate use of the switched computer systems. In order to allow EDID and HDCP monitors and computers to function flawlessly with KVM switches, ATEN developed a new technology known as *Video DynaSync*.

How do KVM switches without Video DynaSync function with EDID and HDCP?

Older KVM switches don't "know about" EDID/HDCP so the operator must either switch the KVM to each computer as it is booted up (defeating the benefit of modern Keyboard/Mouse Emulation), or must manually set the video on each computer. On large KVM deployments that can waste a lot of time. Even if various non-optimum video outputs can be displayed on the monitor, the time to display an image will be increased, still slowing operations. Some systems try to fix this problem by sending the computers arbitrary (default) monitor resolution data so they will boot up as if they had the monitor EDID, but without the correct EDID this approach will yield less-than-optimum resolution.

Remember that unlike old multi-sync CRTs, modern LCD monitors have fixed pixel locations and don't do a good job with other-than-that-optimum pixel mapping. In some cases the modern monitor may be unable to display anything when the user actually switches to them using an incorrect default EDID value, or the computer may take a while to re-sync to the correct monitor resolution. In rare cases (with too high a default EDID resolution) monitor damage can occur. None of these situations is desirable.

ATEN has the solution

ATEN solves the dilemma by adding dedicated, non-volatile EDID memory to certain models of KVM switches. As soon as they are turned on, these models read the monitor's EDID and store it in their memory; the information is instantly available to all the connected computers so their DDC sensing can accurately and automatically set their video outputs. HDCP connectivity is maintained as well, preventing unwanted blockage of protected digital content. ATEN calls this patent-pending technology "Video DynaSync™."

Because it avoids lost time in switching and trying to get the video to look right (or trying to read a monitor with non-optimized video driving it), Video DynaSync switches will gradually pay for themselves while ensuring operator viewing comfort and avoiding mistakes caused by unsharp video display.

ATEN Models using Video DynaSync

- CS682 2-Port USB 2.0 DVI KVM Switch
- CS62U/CS62US/CS64US 2/4-Port USB KVM Switch

- CS1642/CS1644 2/4-Port USB 2.0 DVI Dual View KVMP™ Switch
- CS1792/CS1794 2/4-Port USB 2.0 HDMI KVMP™ Switch
- CS1782/CS1784 2/4-Port USB 2.0 DVI KVMP™ Switch
- CS1762A/CS1764A 2/4-Port USB 2.0 DVI KVMP™ Switch
- CS1732B/CS1734B 4-Port USB 2.0 KVMP™ Switch with OSD
- CS1708A/CS1716A 8/16-Port PS/2-USB KVM Switch
- CS1708i/CS1716i 8/16-Port PS/2-USB KVM on the NET™ With 1 Local/Remote User Access

About ATEN

ATEN International Co., Ltd. is specialized in connectivity solutions in information technology. Established in 1979, ATEN is today considered the leading manufacturer of KVM Switches worldwide. This prominent position was reached by continuously high investment in research and development, resulting in numerous patents and exemplified by the sophisticated ASIC, developed in the ATEN labs and manufactured by ATEN. The product range today covers hundreds of connectivity products, providing complete KVM solutions from entry level to the enterprise market. Among the customers of ATEN are large companies with global operations, midrange and small businesses, as well as ambitious private users. For further information, please visit <http://www.aten.com>.