



## **Display Data Channel and Extended Display Identification Data**

This document is intended to give the reader a general overview of the Display Data Channel (DDC) and Extended Display Identification Data (EDID) standards. Information in the document is aimed toward a reader that has a basic understanding of computer hardware and the Microsoft Windows® operating system. Potential issues that can be encountered when working with these technologies will also be discussed.

DDC and EDID technology is intended to make display devices truly “plug and play” when connected to a computer. For detailed technical information regarding these standards, consult the Video Electronics Standards Association (VESA) documentation for DDC, EDID and Enhanced EDID (EEDID).

### **General Technical Information**

DDC is a standard method for communication between a display adapter in a computer and a display device. Data is transmitted from the read-only memory (ROM) chip on the display device to the display adapter. This data is referred to as the EDID and it contains information regarding the display device’s supported resolutions and refresh rates.

Using DDC2 (the second version of the DDC standard), communication between the display adapter and display device takes place on pin 12 and 15 of a 15 pin VGA cable. A clock signal is transmitted on pins 15 while pin 12 transmits the serial data between the display adapter and the display device. Pin 9 is used as an optional +5 V line supplied by the display adapter.

### **Display Adapter Drivers and DDC**

Typically, current Microsoft Windows® operating system drivers for display adapters access the EDID data in a display device in order to determine which resolutions should be available in the Windows display properties dialog. In some cases, it is possible to override the settings found in the EDID, though some resolutions may not be available if the display adapter driver ignores the EDID data.

For example, a display device may support a resolution such as 1360x768 but if the EDID for the device is ignored, the display adapter driver’s default settings may not include 1360x768. In this example, it would be necessary to add the 1360x768 resolution to the display adapter driver manually.

It may be possible to add resolution information for a particular display device to a display adapter driver, though this depends on the individual display adapter. Forcing the display adapter driver to ignore EDID data and adding the correct resolution and timing for a display device can often be the best option. Omnivex Support ([support@omnivex.com](mailto:support@omnivex.com)) can help you select the ideal display adapter for your particular application.

## **VGA Cables and DDC**

It is important that all VGA devices including cables, splitters, amplifiers, and converters support DDC if you wish to use a display device's EDID information. Many devices intended for splitting or extending VGA signals do not support DDC. Thus, when extending a VGA signal beyond a single 15 pin VGA cable, it is often best to assume that using DDC for display device settings will not be possible.

## **Potential Problems**

When working with DDC, various factors can affect whether or not the EDID data will be properly transmitted from the display device to the display adapter. Below is a brief list of problems that may cause issues with display devices.

- Long VGA cable runs may degrade both the VGA and DDC signal to the point where the information is not properly synchronized. This can result in display devices that do not identify themselves properly, or a distorted image on the display device.
- Introducing devices to extend or split a VGA signal may prevent the EDID data from reaching the display adapter. Some VGA hardware devices do not support DDC. This is generally noted in the documentation for the device.
- Rebooting a computer while a display device is off or in standby mode may cause the display adapter driver to revert to Windows default resolutions.
- Some display devices may contain incorrect EDID data so that the display adapter's driver will attempt to drive the screen with incorrect settings.

## **Technical Support**

The Omnivex Support team is available to offer suggestions and help design a solution that will best suit your display network. Please contact us if you have any questions ([support@omnivex.com](mailto:support@omnivex.com)).

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