## Macintosh Displays: Overview of Sense Codes and Adapters (5/95)

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TOPIC -----------------------------------------------------------

This article describes sense codes and sense adapters and why they are used.

DISCUSSION -------------------------------------------------------

Apple computers and video cards rely on sense codes in the display's video cable
to determine what resolution at which to run. For example, an Apple 13-inch RGB
monitor tells the Macintosh that it supports 640x480, so the Macintosh computer
responds by displaying that resolution. When an Apple Multiple Scan Display is
connected, it signals to the Macintosh that it can run in a range of
resolutions. For example, a Multiple Scan 20 Display can support resolutions
from 640x480 up to 1152x870. Sense Code technology is how Apple displays know
what resolution to display.

Older Macintosh computers and Apple video cards do not have reprogramable video
drivers that allow them to switch to higher resolutions. If a Multiple Scan
Display is connected to an older Macintosh or video card, it will be limited to
640x480 resolution.

Macintosh computers and video cards that fall into this class are:

Video Cards - 4•8, 8•24, and 8•24GC
LC , LC II, LC III (except 475, 476, and 630)
Performa (except the 475, 476, and 630 family)
PowerBook
Duo Dock and MiniDock*
Macintosh II family

The sense adapter attaches to the display's video cable, and has a sense code
for a higher resolution.

* - The Duo Dock does not require a video adapter to change resolutions when
System 7.5 is installed.


Sense Adapters
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Sense code cable adapters allow older Macintosh and video cards to display higher resolutions on multiple scan displays. The adapters have a sense code for a higher resolution. This tricks the Macintosh into thinking it is hooked to a fixed frequency display like our 16-inch and 21-inch RGB displays.

The other solution when using a multiple scan display, is to use a programmable display card like a Macintosh Display Card 24AC. Because this card is fully capable of recognizing the multiple scan sense codes and changing resolutions without restarting, even older Macintosh Systems work fine if they have a 24ac card.

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Sense Code Adapter Specifications
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832x624 Adapter - 16-inch Display

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DB15M  DB15F  Pin Assignments


1       1      RED GND
2       2      RED VIDEO
3       3      C SYNC
5       5      GREEN VIDEO
6       6      GREEN GND
9       9      BLUE VIDEO
11      11     C & V SYNC GND
12      12     V SYNC
13      13     BLUE GND
14      14     H SYNC GND
15      15     H SYNC
SHELL   SHELL
```

Notes:
PINS 4 & 10 JUMPERED TOGETHER ON DB15 MALE END.


1152x870  Adapter - 21-inch Display

```
DB15M    DB15F  Pin Assignments


1        1      RED GND
2        2      RED VIDEO
3        3      C SYNC
5        5      GREEN VIDEO
6        6      GREEN GND
9        9      BLUE VIDEO
12       12     V SYNC
13       13     BLUE GND
14       14     H SYNC GND
15       15     H SYNC
11       11     C & V SYNC GND
SHELL -  SHELL
```

Notes:

PINS 4,7,10,11 JUMPERED TOGETHER ON DB15 MALE END.


Article Change History:
05 May 1995 - Made minor corrections.
21 Apr 1995 - Added Duo Dock and System 7.5 information.
14 Mar 1995 - Corrected wording of MiniDock.

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