



The Communicator

A built-in ultra-high speed video output device with 1024 bytes of random access memory, scrolling, and multiple programmable cursor circuitry.

VDM-1 Video Display Module

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The VDM-1 generates sixteen 64-character lines in a large easy-to-read font with **both upper and lower case letters**. It contains 1K (1024) bytes of random access memory, to which the processor can read or write, just as though the memory were an integral part of the system. As the information is written in, contents of the on-card memory are displayed instantly without interrupting the operation of the processor.

Once the processor provides the display status parameters, the VDM-1 can be made to **"scroll" its display upwards or downwards**. A built-in timer allows scrolling at about 4 lines per second eliminating complicated timing program routines. At top speed, the display scrolls through a dump of 65K of memory in two minutes; that's about 1000 lines per minute!

Within each text line, the VDM-1 can be set to respond to two control characters: Carriage Return will cause the rest of the line to be blanked, and Vertical Tab will cause the remainder of the line and the rest of the screen to be blanked. This is a useful feature when writing over old text still in the memory.

Multiple programmable cursor circuitry is built in. All 1024 cursors can be displayed at one time or begin anywhere in the display. Thus, the VDM-1 can display white-on-black or black-on-white—perfect for many video games! The VDM-1 also features EIA Video output for any standard video monitor, or a TV repair shop can easily modify your own set.

The VDM-1 comes with **free terminal mode software**, designed for teletype replacement when used with BASIC or our own resident Assembly system. (Powerful text editing software and various game packages are also available.)

Co-axial connector is not included.

Specifications:

Display Format	16 lines of 64 characters, upper and lower case, with descenders. Control characters visible as abbreviations when on-card switch is thrown.
Output	EIA composite video, Ivpp nominal, 75 ohms 6.7 Mhz.
Input	ASCII data written into RAM memory on card. Bit 7 sets cursor at character location. Processor may read contents of on-card RAM memory. RAM contains 1024 bytes.
Status Inputs	Single eight-bit word written by processor to output port on card. Comprised of two four-bit screen display parameters; Text Displacement and Text Address. Text Displacement (high-order bits); number of blanked lines on screen before display begins. Text Address (low-order four bits); line address within on-card RAM memory at which display begins.
Status Outputs	Single bit read by processor from input port on card (DI \emptyset). Indicates that less than 0.25 second has elapsed since last status parameter output to card. "1" indicates less than 0.25 sec (nominal)
Cursor	Solid video inversion block (black character on white background) superimposed over each character having bit 7 set to "1"
Address Restrictions	Any 1k page may be selected for memory address. Any I/O port address having the low-order two bits equal to " \emptyset " may be selected. Selection is performed by connection of jumpers on card.
Bus Restrictions	One wait state required for each processor access to on-card RAM memory. Processor always has priority over screen. Screen will blank during cycle in which access is performed.
Screen Blanking	(a) during processor access cycle (PSYNC to PSYNC of following cycle) (b) from vertical sync pulse to beginning of text as specified by Text Displacement parameter. (c) from CR character (non-inclusive) to end of text line (may be disabled with on-card switch) (d) from VT character (non-inclusive) to bottom of display (may be disabled with on-card switch)
Blinking	Cursors will flash at 0.5 second period if enabled with on-card switch.
Video Polarity	Polarity of display may be changed to black-on-white with on-card switch.
Power Requirement	+8 volts / 1.0 A maximum +16 volts / 50 ma typical -16 volts / 30 ma typical
Physical Dimensions	5.3" x 10.0" (13.46 cm x 25.4 cm)
Bus Pinout	Plug-in compatible with Sol System, Altair 8800 or IMSAI 8080 bus.