

VAMP-LT

REV. B

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Computer Dynamics, Inc.**

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1. OVERVIEW

The VAMP (Video Analog Monitor Panel) from Computer Dynamics is an analog VGA CRT replacement. The VAMP combines a flat panel display with optional touch screen into a small ruggedized package which can easily be embedded in your product. Computer Dynamics offers several video display options, several sizes of flat panels with optional resistive, capacitive, or infra-red touch screens. It would be impossible to create a step-by-step installation manual for every conceivable VAMP configuration. So we've chosen a typical configuration, a high resolution color Liquid Crystal Display, and a resistive touch screen. We'll be discussing concepts common to all VAMP products, and trust you'll refer to the appropriate component manuals for specific information about your VAMP configuration.

The Computer Dynamics VAMP is a complete flat panel display (640x480 resolution) and touch screen (optional) sub-system in one compact (12.6" x 8.6" x 2.75") package. It is pre-engineered, ready to embed in your product. Applications range from factory and machine control to point of sale terminals, medical equipment and diskless LAN work stations. The VAMP system features a high performance VGA display, that is designed for the rigors of the industrial environment.

This manual provides you with instructions to install and operate the Computer Dynamics VAMP. It also includes a description of all components, and a list of supplies and tools you will need to install it. After you read this manual, you will be able to:

- Connect to your PC
- Start the Computer Dynamics VAMP
- Adjust the screen controls
- Run the touch screen software, calibrate the touch screen, and run the demonstration programs (*if you have the touch screen driver software and optional touchscreen*)

In addition to this manual, you should also have available the:

- TBDriver Manual (*if using the touch screen driver software*)

Features:

The system is powered by a **100% VGA CRT driver compatible circuit board** from Computer Dynamics. Since the VAMP **is** a monitor, you are probably already familiar with many of its capabilities. You can develop and test your DOS-based software applications right on your VAMP, just as on your desktop Monitor. The VAMP features a full complement of Monitor functions. Depending on your configuration, you'll have:

- VGA Analog DB-15 port
- Piezo Buzzer with adjustable pitch
- Horizontal and Vertical adjustment
- Brightness and Contrast adjustment
- RS-232 port provided with optional touch screen

The optional **Touch Screen** is fully integrated into the system, and **TBDriver** software gets your touch screen going quickly. The VAMP can operate with or without the touch screen.

TWDriver software is available from Computer Dynamics if you wish to use the touch screen with Windows.

1.1 Specifications

Compatibility	100% IBM hardware BIOS/software compatible
Operator Interface	Three momentary switches control Horizontal, Vertical, Contrast and Brightness, and speaker adjustment. All levels stored in EEPROM automatically.
Video/Display	VGA compatible with analog video input. Liquid crystal (LCD) or electroluminescent (EL) displays installed.
Video Interface	Non-Interlaced Analog RGB, 0 to +0.7V into 75 Ohms. Sync - TTL Horizontal and Vertical. Sync Lock - Phase Locked Loop. Horizontal Frequency: 31.5 kHz \pm 3.5 kHz. Vertical Frequency: 50 to 70 Hz. One analog VGA DB-15 Female port for video input.
Communications	One RS-232 Female DB-9 port if optional touchscreen was ordered.
Mechanical	VAMP Board: 5.75" x 5.58".
Environmental	Operating Temperature: 0 to 40 Degrees C <i>(Higher depending on Display)</i> . Storage Temperature: -25 to 60 Degrees C. Relative Humidity: 15% to 90% Non-condensing.

VAMP Option Power Requirements, AMPS												
VAMP Board	+5V	+12V	-12V		-PANEL	+5V	+12V		-TOUCH	+5V	+12V	-12V
VAMP	.52	.35	0.0*		-H429	.30	1.20		-CR4	NU	.40	NU
					-H713	.60	2.00		-ARx	.10	NU	NU
					-H732	.70	2.00		-CNx	.10	NU	NU
					-H927	.25	2.50		-GAx	NU	.30	NU
					-SH13	.60	0.40		-GNx	NU	.30	NU
					-SH23	.50	0.20					
					-SH27	.25	0.30					
					-SH29	.30	0.35					
					-SH32	.70	0.90					
					-TS3	.20	0.40					

**The VAMP generates -12V for internal requirements onboard.*

To determine the power requirements for any specific VAMP model, add the individual power requirements for each option. For example, an VAMP-SH32-GA4 would require:

	+5V	+12V	-12V
VAMP	.52	.35	
-SH32	.70	.90	
-GA4		.30	
Total Current	1.22 Amps	1.55 Amps	0.0 Amps

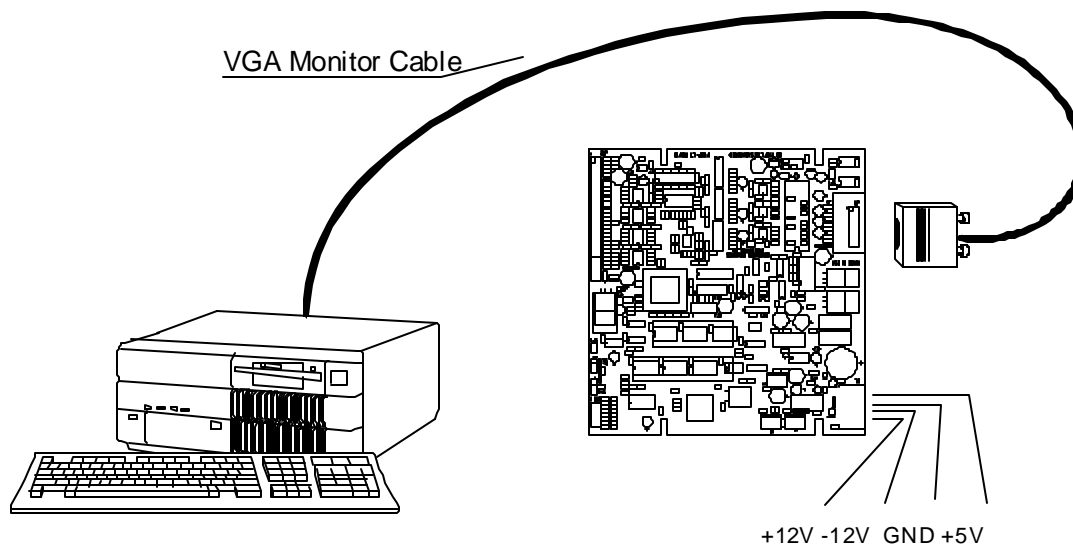
2. WHAT YOU WILL NEED

Along with the Computer Dynamics VAMP, you will need the following:

- A regulated power supply providing +5, +12 V
- A VGA Monitor cable. (Supplied with the VAMP)
- A RS-232 Serial Extension cable. (Supplied if you have a touchscreen)
- A PC equipped with a VGA CRT driver card
- TBDriver™ software, (if you plan to use the touchscreen drivers)

Note:

The VAMP includes a VGA cable and this instruction manual.

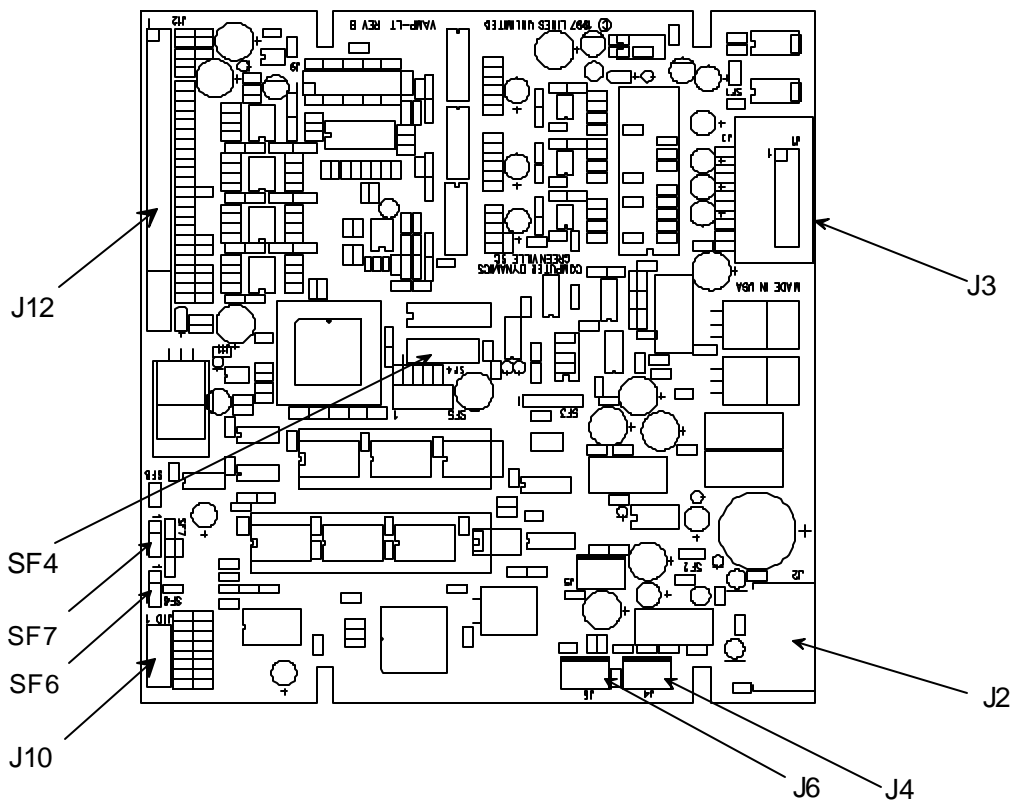


Typical Configuration

Note: Verify that -12V is connected to pin 2 or leave pin open.

3. HOOKING UP THE PIECES

This discussion will assume you are using the optional Touch Screen, since this configuration is the most comprehensive. We also assume you are familiar with DOS and Monitors in general. Complete details and technical information are included in each component manual.



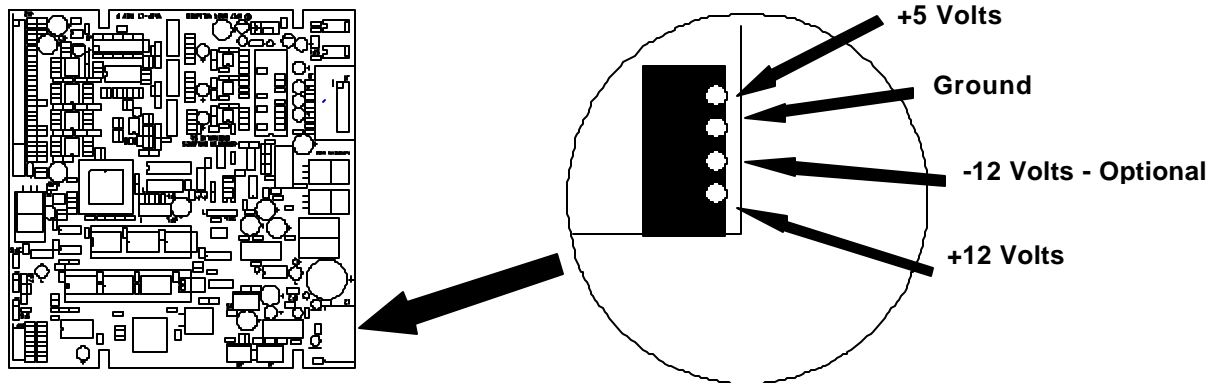
Connector Placement

Pin 1 of each connector is toward the top of the board.
Initially, you will connect power and the VGAmonitor cable.

3.1 Power

POWER is supplied to the VAMP board at J2. Voltages of +5 and +12 volts are required by the VAMP, panel and touch screen as shown in section 1.1. The Capacitive touchscreen, option -GT2, requires -12 volts, which can be supplied by the VAMP on-board circuitry. After connecting your power supply (*Computer Dynamics PN PS50-SBC* or equivalent) to the VAMP and connecting your VGA cable to J3, **TURN IT ON**. The screen will display the current output of your attached PC. Refer to section 3.4 for picture position and quality adjustment.

Always be sure to have power turned off when connecting cables.



Power Connector - J4

Note:

J2 physically mates with common disk drive connectors. However, pin 2 is usually at GROUND on a PC power supply. Verify that the supply used has pin 2 at -12v or leave disconnected. The VAMP has an on-board -12V generator circuit sufficient for internal needs.

3.2 VGA Cable and Serial Cable

The **VGA Cable** connects to J3. A standard VGA Monitor cable will work (DB-15 Male to Male); one is supplied with the VAMP.

3.3 Touch Screen

The **TOUCH SCREEN** is factory connected to a RS-232 serial port DB-9 Female connector on the back of the VAMP metalwork. The touch screen can communicate with your PC via any available COM port, using a standard serial cable (supplied). See your touch screen manual for more details.

3.4 Control Switches

There are three control switches connected to the VAMP at J10. Each switch is a 3 position momentary switch with the center position being the rest position. The **MODE SWITCH** determines what attribute the other two switches control. **SWITCH A** and **SWITCH B** control Contrast/None/Horizontal and Brightness/Tone/Vertical respectively.

MODE SWITCH in the middle position: *(where the switch will always come to rest)*

- SWITCH A** controls the contrast.
- SWITCH B** controls the brightness.

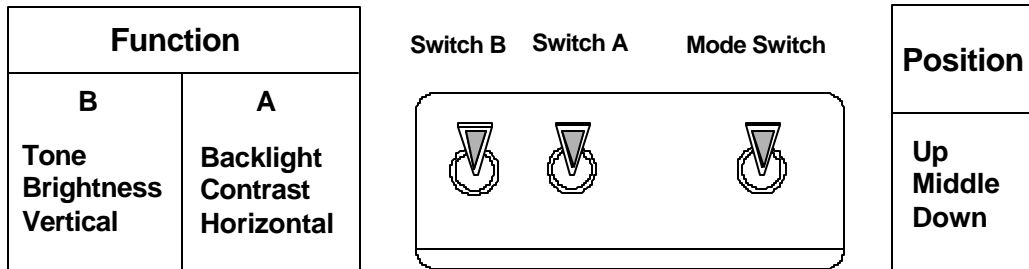
MODE SWITCH in the pulled up position:

- SWITCH A** controls Backlight ON/OFF.
- SWITCH B** controls the sound of the tone generated when a switch is activated.

MODE SWITCH in the pushed down position:

- SWITCH A** controls the horizontal positioning of the picture.
- SWITCH B** controls the vertical positioning of the picture.

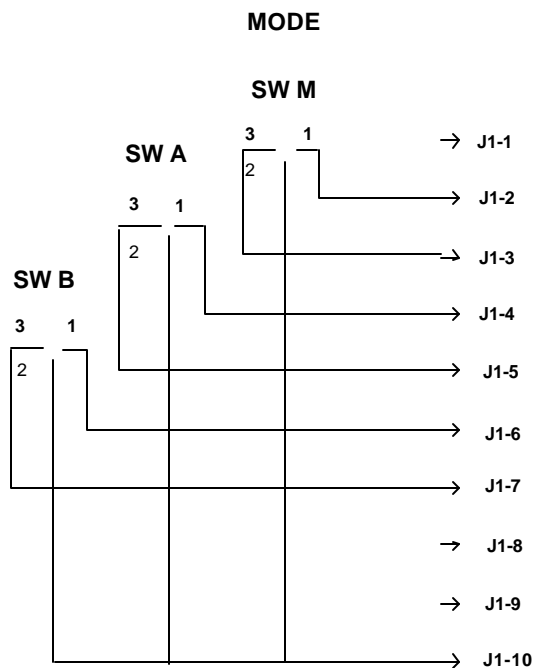
Control Switches



POSITION	SWITCH B	SWITCH A	POSITION	MODE SWITCH
UP	Brightness Decrease	Contrast Decrease	CENTER	Contrast/Brightness
DOWN	Brightness Increase	Contrast Increase	CENTER	Contrast/Brightness
UP	Vertical Down	Horizontal Left	DOWN	Horizontal/Vertical
DOWN	Vertical Up	Horizontal Right	DOWN	Horizontal/Vertical
UP	Speaker Decrease	No function	UP	Speaker Tone
DOWN	Speaker Increase	No function	UP	Speaker Tone

The settings you select are automatically stored in non-volatile memory after two seconds or on a video mode change. To restore the settings to the factory settings, press and hold the "Speaker Decrease" switches (i.e. MODE and Switch B Up) and cycle power. At power up while holding these switches down, you should hear three short beeps. This indicates that the factory defaults have been reloaded.

The controls switches can be easily remotely mounted as a part of your enclosure to give the user access to the switches. A simple ribbon cable could connect the Control Switch Interface, J10, to your custom switches if your application requires it. A schematic diagram of the Control Switch Interface is shown below. If you have any questions please call your Applications Engineer.



Schematic Diagram of Control Switch Interface

3.5 Audible Codes

The Piezo Speaker on the VAMP has several purposes:

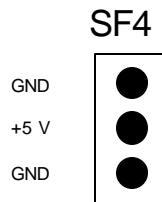
- Gives the user an audible "Keyclick" while adjusting the switches
- Alerts the user when the limit of one of the switches has been reached
- Generates error tones if needed during power-on

The following are the beep codes provided by VAMP.

Function	Beep Code
Keyclick	1 Short Beep
Factory Settings Reloaded	3 Short Beeps
EPROM Checksum Error	1 Long, 2 Short Beeps
EEPROM Checksum Error	1 Long, 3 Short Beeps
Limit Reached	1 Long Beep
Diagnostic Port Error	2 Long Beeps

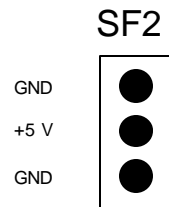
3.6 Confidence LED -- SF7

If installed the confidence LED should flash if the VAMP firmware is running properly. The pinout of SF7 is shown in the figure below.



3.7 Power LED -- SF6

If installed the Power LED should be on constantly anytime +5 Volts is applied to the VAMP board. The pinout of SF6 is shown in the figure below.



4. SOFTWARE SUPPORT

4.1 TBDriver and TWDriver

A touchscreen is one of the most technically sophisticated yet easiest to use input devices available today. Many different types are available, but the end result is the same: you touch the visual images you see, and the computer responds. A touchscreen is a hardware device which is physically attached to the computer's monitor and can accurately sense the position of a touch.

Traditionally, touchscreens were sold as a purely hardware product, and applications tended to interface directly with the hardware, frequently with dubious results. Recognizing the disadvantages of this approach, most manufacturers do now provide drivers with their touchscreens, and virtually all modern touchscreen applications use a driver of some sort to insulate the application programmer from the worst of the low level programming. Some touchscreen drivers are relatively simple data capture and packet interpretation utilities, and do little to provide real performance, resilience and flexibility. TBdriver is at the other end of the scale, providing an extensive range of facilities and a rich Application Programming Interface. TBdriver also offers an important advantage over any other touchscreen driver. Each of the growing number of touchscreens on the market uses a different interface protocol, but TBdriver maps them all to an identical API. An application written to the TBdriver API will automatically work with any of the touchscreens TBdriver supports. That gives you, your application, and your users a valuable edge in today's tough commercial world.

TBdriver takes care of all the complexities of touchscreen initialization, interrupt handling, touch buffering, calibration, orientation, scaling and more. It presents all its functions as a logical, fully documented and consistent Application Programming Interface, saving the application programmer a great deal of time and effort.

TWdriver is a device driver which enables you to use a touchscreen with Microsoft Windows and any Windows application program. TWdriver interfaces the touchscreen to Windows as though it were a mouse, and allows the touchscreen to perform all the normal functions of a mouse, the only difference being that while a real mouse has two or more buttons, a touchscreen emulates just one.

Touchscreens are the most practical input device for Windows applications operating in physical environments where a mouse is unsuitable, for example, in public places, points of sale, factory floors and clean rooms, to name but a few. They are also ideal for use by people with little or no computer experience, for whom there is nothing more intuitive than touching what they see. The combination of a touchscreen with the Windows Graphical User Interface is ideal for these purposes.

Both TBdriver and TWdriver are both available from Computer Dynamics. Ask your Applications Engineer for details.

5. Warranty



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WARRANTY

CDI products are warranted for a period of one year from the date of purchase against all defects in materials and workmanship provided they are properly used and not modified by non-CDI personnel. Subassemblies and items not manufactured by CDI (power supplies, disk drives, etc.) are warranted for the period established by their original manufacturer. CDI will repair or replace the product, provided that it is returned promptly to CDI at the owner's expense. Prior to returning a component or subsystem, the purchaser must obtain a Return Material Authorization number (RMA#) from CDI. All board level products are shipped in an antistatic bag to prevent damage to the electronic components due to electrostatic discharge. Failure to use the bag in shipment will VOID the warranty. No other warranty is expressed or implied.

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To Our Customers:

It is our intention to provide you with accurate and useful information about our product. Although the information is correct to the best of our knowledge, we cannot assume responsibility for inaccuracies within the manual.

We request that you inform us of any errors found, areas difficult to understand or suggestions to improve this manual. Please fill out the bottom portion (using additional sheets if necessary) with your comments and return it to CDI.

Thank you.

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Product Type: _____

Card Serial No. _____

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