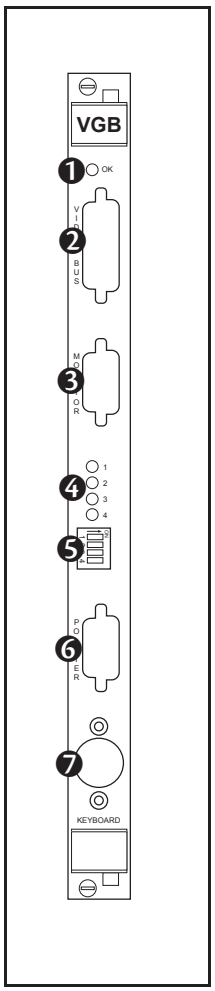
6 Adept Graphics Board (VGB)

Introduction

The Adept Graphics board (VGB) provides graphics capability for Adept controllers. (You may also use a PC and the AdeptWindowsPC software as a graphical operator interface. AdeptWindowsPC is a functional replacement for the VGB, allowing the use of a PC to display graphics.) The VGB is a single-slot 6U VME board that serves as the graphics processor and controls the video output to the color monitor. The VGB has connectors for the monitor, keyboard, and pointing device (mouse, trackball, etc.). The VGB also has a direct video bus connection to the EVI board in AdeptVision systems.

Connections and Indicators



❶ **OK** LED indicates that this board has passed its start-up test.

❷ **Video Bus** connector — a 26-pin mini D-sub connector for installing one end of the video bus connector in AdeptVision systems. The other end of the connector connects to the EVI board. (Not used in nonvision systems.)

❸ **Monitor** connector — a 15-pin female mini D-sub connector for the color monitor. See **page 135**.

❹ LEDs 1 to 4 are for Adept Service use only.

❺ DIP Switch (4 position) — see **Table 6-1** for functions.

❻ **Pointer** connector — a 9-pin male D-sub connector for the pointer cable from the Adept integrated keyboard/trackball. Can also be used for a mouse or touchscreen. See **page 137** for details.

❼ **Keyboard** connector — a 5-pin female DIN connector for the keyboard cable from the Adept integrated keyboard/trackball. See **page 136** for details.

NOTE: On a graphics-based system, the V+ system monitor window is normally displayed on the monitor connected to the VGB board. However, you can redirect the system monitor input/output to the RS-232/Term port on the processor board.

DIP Switch Settings

Table 6-1. VGB Board Front Panel DIP Switch Functions

Switch	Function
1	OFF – enables Adept logo display at boot-up ON – disables logo display
2	OFF – the pointer is a mouse (Microsoft serial mouse protocol, 1200 bps) ON – the pointer is a touchscreen (ELO TouchSystems protocol, 1200 bps)
3	OFF – U.S. keyboard ON – Japanese keyboard
4	Adept internal use only, should be set to OFF
If you change the settings, you must reboot (turn controller off, then on) before the changes take effect.	

VME Bus Address

The VGB board has a fixed address that should not be modified by the customer.

Monitor Video Interface

The VGB board supports a color monitor with a resolution of 1024 by 768. See **Table 6-3** for the monitor compatibility specifications. The pin assignments for the Monitor connector are shown in **Table 6-2**.

Table 6-2. Monitor Connector Pin Assignments

Pin	Signal	Pin	Signal
1	Red Video Output	9	Not connected
2	Green Video Output	10	Ground
3	Blue Video Output	11	Ground
4	Ground	12	Not connected
5	Self Test (Ground)	13	Horizontal Sync
6	Red Video Ground	14	Vertical Sync
7	Green Video Ground	15	Not connected
8	Blue Video Ground		

Table 6-3. Monitor Compatibility Specifications

Video Display Resolution	1024 x 768 pixels
Frame Rate	60 Hz
Format	Noninterlaced
Line Rate	48.363 kHz
Dot Rate	65.000 MHz
Video signal	Analog RGB
Signal level	0 - 0.7 Vp-p
Input Impedance	75 ohm ±5% at 100 kHz

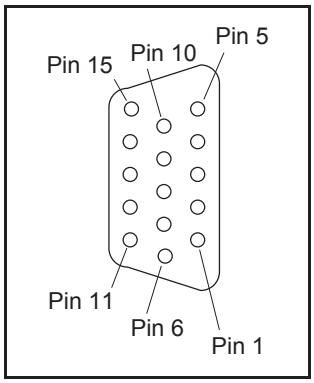


Figure 6-1. Monitor Connector Pin Locations on VGB Board

Keyboard Interface

The VGB board supports an AT-style extended keyboard with an integrated trackball. The keyboard interface is a bidirectional, synchronous, serial interface. The keyboard communicates with the UART on the VGB via the clock and data lines. The keyboard input uses a standard 5-pin DIN connector. The Keyboard connector pin assignments are shown in **Table 6-4**.

Table 6-4. Keyboard Connector Pin Assignments

Pin	Signal
1	Clock
2	Data
3	not connected
4	Ground
5	+5 VDC

Pointer Interface (Mouse, Trackball, or Touchscreen)

The VGB board supports a standard Microsoft serial mouse-protocol compatible pointer. The pointer input uses a standard 9-pin D-sub connector. The pointer interface is serial, not parallel. Pin assignments for the Pointer connector are shown in **Table 6-5**. This port can alternatively be used for a touchscreen using ELO TouchSystems protocol. When installing a touchscreen, disconnect the trackball or mouse. Only one pointing device is usable at a time. This port operates at 1200bps. See **"Connections and Indicators" on page 133** for configuration and compatibility.

Table 6-5. Pointer Connector Pin Assignments

Pin	Signal	Pin	Signal
1	Shield	6	not connected
2	Transmit Data (from pointer)	7	+12 VDC (RTS)
3	Receive Data (to pointer)	8	not connected
4	not connected	9	not connected
5	Signal Ground		

VGB Board Specifications

Table 6-6. Technical Specifications[a]

Electrical Power Consumption	5 V at 2.3 A +12 V at 2 mA –12 V at 2mA
Pointer Input	For mouse or trackball, Microsoft serial mouse protocol, 1200 bps For touchscreen, ELO TouchSystems protocol, 1200 bps
Keyboard input	AT-compatible, DIN-5 connector
Width	Occupies one backplane slot

[a] Specifications subject to change.