

SLIMLINE 1U™ SERIES

Rack Drawer Military-/Industrial-Grade LCD Monitors with Integral Keyboard & Trackball



SlimLine 1U 19.0 with optional sunlight readable flip-up display, mounted in military transit case

At a mere 1U high (1.75") the ultra low profile **SlimLine 1U Series** flip-up LCD monitor with integral keyboard and trackball is optimized for maximizing valuable rack drawer space. The compact design and industrial durability combine with General Digital's legendary configuration control and long product life cycles to make this unit the ideal rack mount solution for confined environments, such as submarines and transit cases.

The steel and aluminum housing provides a cost-effective, lightweight housing that can be used in most commercial/industrial applications, yet is rugged and robust enough for military use. Use of continuous-friction hinges permit the viewing angle of the display head to be user adjusted over a usable range of greater than 90°.

Additionally, users can choose from several keyboard/pointing device combinations to satisfy their commercial, industrial or military requirements.

STANDARD FEATURES

- » 15.0" to 19.0" LCDs
 - › XGA (1024 x 768) to WUXGA (1920 x 1080) resolution
 - › In compliance with MIL-STD-461E, UL & FCC standards
- » 1U (1.75") rack mount enclosure
 - › All-metal construction is in compliance with industrial or MIL-STD-810E and -810F and TEMPEST Level 2
 - › Continuous-friction hinges permit display adjustment greater than a 90° range
- » Support for most video inputs, including:
 - › ARGB (Separate, Composite, Sync-On-Green)
 - › Composite (NTSC, SECAM, PAL, RS-170)
 - › DVI-D
 - › HDMI
 - › DisplayPort
- » Commercial-, industrial- and military-grade keyboards
 - › Integral 1 $\frac{3}{8}$ " trackball
 - › Several choices are in compliance with military standards for sealing and shock/vibration

AVAILABLE OPTIONS

- » High brightness levels
- » NVIS goggle compliance to MIL-STD-3009
- » Numerous display enhancements, including:
 - › Touch screens: capacitive, resistive, more
 - › Optical bonding for increased display clarity and shatter resistance
- » Cable management systems
- » Variety of AC-DC and DC-DC power inputs
- » DVD/Blu-ray drives
- » 4-port USB hub
- » KVM switches
- » Speakers

SLIMLINE 1U LCD MONITORS

15" DISPLAY (Popular models listed—alternate configurations available upon request)

Properties	15X-408	15X-409	15X-989
Size (diagonal)	15.0"	15.0"	15.0"
Viewing Area (W x H)	11.97" x 8.98"	11.97" x 8.98"	11.97" x 8.98"
Resolution (pixels)	1024 X 768	1024 x 768	1024 x 768
Number of Colors	16.7 Million	16.2 Million	16.7 Million
Luminance (0° maximum)	400 Nits	400 Nits	600 Nits
Contrast (maximum)	600:1	700:1	600:1
Response Time (rise/decay)	6/2 ms	5.7/2.3	3/5 ms
Viewing Angle (horizontal – L/R)	±80°	±80°	±80°
Viewing Angle (vertical - U/D)	±80°	+60°/-80°	±80°
Shock ¹	30 G, 11 ms ½ Sine Wave	50 G, 20 ms ½ Sine Wave	30 G, 11 ms ½ Sine Wave
Vibration ¹	1.0 G (5–100 Hz)	1.5 G (10–200 Hz)	1.0 G (5–100 Hz)
Temperature, Operating	-20° to 70°C	-30° to 85°C	-20° to 70°C
Temperature, Storage	-30° to 85°C	-30° to 85°C	-30° to 80°C
Humidity, Operating	8% to 90% RH Non-condensing	8% to 90% RH Non-condensing	8% to 90% RH Non-condensing
Humidity, Storage	8% to 90% RH Non-condensing	8% to 90% RH Non-condensing	8% to 90% RH Non-condensing
Case Dimensions (H x W x D) ²	1.75" (1U) x 19.00" x 20.00"		
Construction	5052-H32 Aluminum & Steel		
Finish	Black Matte Powder Coat		
Mounting	Rack Mount Drawer		
Weight, Operating ³	20–22 Pounds		
Weight, Shipping ³	28–30 Pounds		
Power Input (default)	+12 Vdc		



SlimLine 1U 15.0 with 83-key keyboard and 1.5" trackball. Optional equipment includes sunlight readable display, front-mounted DVD drive and USB port, dual speakers and a headphone jack.

Screenshot courtesy of Siemens/Wikipedia

SLIMLINE 1U LCD MONITORS

17" DISPLAY (Popular models listed—alternate configurations available upon request)

Properties	17D-524	17W-510	17W-956 ⁴
Size (diagonal)	17.3"	17.0"	17.0"
Viewing Area (W x H)	15.03" x 8.46"	13.30" x 10.64"	13.30" x 10.64"
Resolution (pixels)	1920 x 1080	1280 x 1024	1280 x 1024
Number of Colors	16.7 Million	16.7 Million	16.7 Million
Luminance (0° maximum)	400 Nits	350 Nits	930 Nits
Contrast (maximum)	600:1	1000:1	810:1
Response Time (rise/decay)	37/3 ms	3.5/1.5 ms	3.5/1.5 ms
Viewing Angle (horizontal – L/R)	±80°	±85°	±85°
Viewing Angle (vertical - U/D)	+60°/-80°	±85°	±85°
Shock ¹	50 G, 20 ms ½ Sine Wave	50 G, 20 ms ½ Sine Wave	50 G, 20 ms ½ Sine Wave
Vibration ¹	1.5 G (10–200 Hz)	1.5 G (10–200 Hz)	1.5 G (10–200 Hz)
Temperature, Operating	0° to 70°C	-30° to 85°C	-30° to 85°C
Temperature, Storage	-20° to 70°C	-30° to 85°C	-30° to 85°C
Humidity, Operating	5% to 95% RH Non-condensing	8% to 90% RH Non-condensing	8% to 90% RH Non-condensing
Humidity, Storage	5% to 95% RH Non-condensing	8% to 90% RH Non-condensing	8% to 90% RH Non-condensing
Case Dimensions (H x W x D) ²	1.75" (1U) x 19.00" x 22.00"	1.75" (1U) x 19.00" x 24.00"	1.75" (1U) x 19.00" x 24.00"
Construction	5052-H32 Aluminum & Steel		
Finish	Black Matte Powder Coat		
Mounting	Rack Mount Drawer		
Weight, Operating ³	21–23 Pounds		
Weight, Shipping ³	29–31 Pounds		
Power Input (default)	+12 Vdc		



SlimLine 1U 17.3 with 83-key keyboard and 1 3/8" trackball. Optional equipment includes front-facing multimedia drive.

Screenshot courtesy of Sgt. Micah Merrill

SLIMLINE 1U LCD MONITORS

19" DISPLAY (Popular models listed—alternate configurations available upon request)

Properties	19W-701	19W-711	19W-993 ⁴
Size (diagonal)	19.0"	19.0"	19.0"
Viewing Area (W x H)	14.81" x 11.85"	14.81" x 11.85"	14.81" x 11.85"
Resolution (pixels)	1280 x 1024	1280 x 1024	1280 x 1024
Number of Colors	16.7 Million	16.7 Million	16.7 Million
Luminance (0° maximum)	350 Nits	450 Nits	1000 Nits
Contrast (maximum)	1000:1	1000:1	700:1
Response Time (rise/decay)	3.6/1.4 ms	7/3 ms	3.6/1.4 ms
Viewing Angle (horizontal – L/R)	±85°	±85°	±85°
Viewing Angle (vertical - U/D)	±80°	±80°	±80°
Shock ¹	50 G, 20 ms ½ Sine Wave	50 G, 20 ms ½ Sine Wave	50 G, 11 ms ½ Sine Wave
Vibration ¹	1.5 G (10–200 Hz)	1.5 G (10–200 Hz)	1.5 G (10–300 Hz)
Temperature, Operating	0° to 50°C	-30° to 85°C	-30° to 85°C
Temperature, Storage	-20° to 60°C	-30° to 85°C	-30° to 85°C
Humidity, Operating	5% to 90% RH Non-condensing	5% to 95% RH Non-condensing	8% to 90% RH Non-condensing
Humidity, Storage	5% to 90% RH Non-condensing	5% to 95% RH Non-condensing	8% to 90% RH Non-condensing
Case Dimensions (H x W x D) ²	1.75" (1U) x 19.00" x 24.00"		
Construction	5052-H32 Aluminum		
Finish	Black Matte Powder Coat		
Mounting	Rack Mount Drawer		
Weight, Operating ³	22–24 Pounds		
Weight, Shipping ³	30–32 Pounds		
Power Input (default)	+12 Vdc		



A team of intelligence Specialists use several SlimLine 1U 19.0 units to analyze maritime traffic using the Navy Reserve's Littoral Surveillance System

Photo courtesy of Photographer's Mate 1st Class Duckworth/Wikipedia

SLIMLINE 1U LCD MONITORS

VIDEO CONTROLLER⁵

Properties	VC117	VC121	VC132	VC135
Maximum Resolution @ Vertical Frequency	1920 x 1200 WUXGA @ 60 Hz	1920 x 1200 WUXGA @ 60 Hz	1440 x 900 WXGA+ @ 60 Hz	1920 x 1200 WUXGA @ 60 Hz
Video Inputs Supported ^{6,7}	ARGB, DVI-D, HDMI	ARGB, Composite, DVI-I, S-Video	ARGB, DVI-D	ARGB, Composite, DVI-D, HDMI

VIDEO STANDARDS SUPPORTED⁷

Analog Computer Video	Digital Computer Video	Composite (Live) Video	HD Video
ARGB, RGB, Separate Sync, Composite Sync, Sync-On-Green, DVI-A, RS-343A (Optional), STANAG 3350 A / B / C (Optional)	DVI-D, HDMI	NTSC, PAL, SECAM, RS-170, S-Video, CCTV	HD-SDI, HDMI

CALIBRATION

Properties	VC117	VC121	VC132	VC135
Interface	On-screen Displays Navigated by 8-button Membrane Pad	On-screen Displays Navigated by 8-button Membrane Pad	On-screen Displays Navigated by 8-button Membrane Pad	On-screen Displays Navigated by 8-button Membrane Pad
Functions	Brightness, Contrast, Saturation, Backlight Brightness, Input Signal, Aspect Size (Scaling), Image Position (Horizontal & Vertical), Utilities	Brightness, Contrast, Saturation, Hue, Sharpness, Backlight Brightness, Input Signal, Aspect Size (Scaling), Image Position (Horizontal & Vertical), Utilities	Brightness, Contrast, Sharpness, Backlight Brightness, Input Signal, Aspect Size (Scaling), Image Position (Horizontal & Vertical), Gamma, Utilities	Brightness, Contrast, Sharpness, Hue, Saturation, Backlight Brightness, Input Signal, Aspect Size (Scaling), Image Position (Horizontal & Vertical), Utilities
Advanced	Picture-In-Picture (PIP), PIP Size, PIP Position, PIP Transparency, Auto Picture Setup, Auto Color Gain, Wide Screen Mode Detection, Manual Clock/Phase, Auto Source Seek, Auto Power Off, Video Standard, OSD (Position, Timeout, Language [English, Spanish, French, German, Chinese], Transparency, Display Input), Image Freeze, Image Zoom & Pan, Color Temperature, Hot Keys, Backlight Setup	Picture-In-Picture (PIP), PIP Size, PIP Position, PIP Transparency, Auto Picture Setup, Auto Color Gain, Wide Screen Mode Detection, Manual Clock/Phase, Auto Source Seek, Auto Power Off, Video Standard, OSD (Position, Timeout, Language [English, Spanish, French, German, Chinese], Transparency, Display Input), Image Freeze, Image Zoom & Pan, Color Temperature, Hot Keys, Backlight Setup, Image Orientation (Normal, Horizontal Flip, Vertical Flip, Rotate)	OSD (Language, Position, Timeout, Transparency), Image Auto Adjust, Color Auto Adjust, Auto Source Seek, Clock, Phase, Color Temperature, Backlight Dimming, Backlight Frequency, Backlight Invert	OSD (Language, Timeout, Transparency), Clock, Phase, Color Temperature, Auto Color Gain, Auto Picture Setup, Auto Source Seek, Auto Power On/Off, Image Orientation, Hot Keys, Backlight Invert, Backlight Dimming, Backlight Frequency, Audio Volume

I/O CONNECTIONS

Power (DC)	On/Standby (DC)	Keyboard/ Pointing Device	Analog Video	Composite Video (Optional)	DisplayPort (Optional)	DVI (Optional)	HDMI (Optional)	Audio (Optional)
6-pin Circular, Locking ⁸	LED on Membrane Pad	6-pin Mini DIN ⁹	High Density 15-pin Socket	BNC Socket	DisplayPort	DVI-D / DVI-I	HDMI, Type A	3.5 mm Headphone Jack

SLIMLINE 1U LCD MONITORS

OPTIONS & ACCESSORIES

General Digital provides an ample selection of options and accessories to complement your LCD monitor. A partial listing of popular choices is provided below. Please visit our Web site for more choices, or inquire with a Sales Engineer to discuss your specific requirements. Note that nearly all options and accessories are ordered separately, at additional cost.

KEYBOARD/POINTING DEVICE¹⁰ (Popular choices listed—contact General Digital for additional selections)

KPD Option No.	Grade	Keyboard Enclosure	Interface	Keyboard		Pointing Device
				Keys	Special Features	Type
51	Heavy-duty Industrial	Metal	PS/2	82	—	1 ³ / ₈ " Trackball/ 3 Mouse Buttons
52	Heavy-duty Industrial	Metal	PS/2	82	Backlit (Red) Keys; Brightness Knob; High Power (requires 1A+ power source)	1 ³ / ₈ " Trackball/ 3 Mouse Buttons
53	Heavy-duty Industrial	Metal	Sun® Type 5 (8-pin Mini DIN)	82	—	1 ³ / ₈ " Trackball/ 3 Mouse Buttons
55	Military ¹¹	Metal	PS/2	82	Backlit (Red) Keys; Pause/Break Feature; Low Power ¹² ; Keyboard Backlight Brightness Control	1 ³ / ₈ " Trackball/ 3 Mouse Buttons
57	Military	Metal	Sun® Type 6 (USB)	82	Backlit (Red) Keys; TEMPEST L2; Low Power ¹² ; Keyboard Backlight Brightness Control	1 ³ / ₈ " Trackball/ 3 Mouse Buttons
58	Military	Metal	PC USB	82	Backlit (Red) Keys; TEMPEST L2; Low Power ¹² ; Keyboard Backlight Brightness Control	1 ³ / ₈ " Trackball/ 3 Mouse Buttons
59	Military	Metal	Sun® Type 5 (8-pin Mini DIN)	82	Backlit (Red) Keys; High Power (requires 1A+ power source); Keyboard Backlight Brightness Control	1 ³ / ₈ " Trackball/ 3 Mouse Buttons
60	Heavy-duty Industrial	Metal	Sun® Type 6 (USB)	82	—	1 ³ / ₈ " Trackball/ 3 Mouse Buttons
62 ¹³	Military ¹¹	Metal	Sun® Type 6 (USB)	121	Backlit (Red) Keys; TEMPEST L2; Low Power ¹² ; Keyboard Backlight Brightness Control; Non-Backlit Trackball	1 ³ / ₈ " Trackball/ 3 Mouse Buttons
64	Heavy-duty Industrial	Metal	PC USB	82	Black Keys	1 ³ / ₈ " Trackball/ 3 Mouse Buttons

DISPLAY OVERLAY (Popular choices listed—contact General Digital for additional selections)

DO Option No.	Description
00	None
02	Clear Float Glass, Antiglare Etch Two Sides
04	Clear Float Glass, Antireflective Coating Two Sides
21	Vandal Shield, Polycarbonate or Acrylic
23	Vandal Shield, Clear Float Glass, Antiglare Etch Two Sides, 2 Panes Bonded (Laminated) Together (Not Bonded to LCD)
24	Vandal Shield, Soda Lime Glass, Chemically Strengthened (Tempered), Antireflective Coating Two Sides

SLIMLINE 1U LCD MONITORS

OPTIONS & ACCESSORIES

POWER SUPPLY (Popular choices listed—contact General Digital for additional selections)

PS Option No.	Mounting Style	Input Voltage Range	Frequency Range	Output Voltage	Power (Maximum)	Power Factor Correction
PS-1U-1275-PFC ^{14, 15, 16}	1U Rack Mount	85–264 Vac (Auto-sensing)	47–63 Hz	+12 Vdc	75 Watt	0.95
90-1105-015/90-160 ¹⁴	Standalone/Rack Mount Bracket	90–264 Vac	50–60 Hz	+12 Vdc	100 Watt	Yes
-IA30 ¹⁴	Internal	90–264 Vac	50–60 Hz	+12 Vdc	66 Watt	Yes
-0088 (none)	N/A	+12 Vac	Filtering and regulation provided by customer			
-0092 (none)	N/A	+12 Vdc	Filtering and regulation provided by customer (default selection)			
-0094 (none)	N/A	+24 Vdc	Filtering and regulation provided by customer			
Standalone Power Supplies	Consult with a Sales Engineer to select from a multitude of AC switching or DC–DC supplies that can be mounted within your rack. We can assist in specifying a commercial, industrial or military power supply that will meet your specific requirements.					

MISCELLANEA

NVIS Compatibility	Night Vision displays in compliance with MIL-STD-3009
Sunlight Readable LCDs	High Brightness displays to 1000+ nits
Optical Enhancements	Bonding of filter and display using indice-matched optical materials; Brightness- and contrast-enhancing films and laminations
Power Supplies	AC and DC supplies; Various input ranges, input frequencies; Separate or attached; Power Factor Correction; AC and DC power cables
Video Accessories	Video cables; Signal extenders; Picture-In-Picture (PIP); Picture-By-Picture (PBP); NTSC PAL SECAM RS-170 S-Video DisplayPort DVI-D HD-SDI SD-SDI HDMI HD Component Support
Remote Control	IR or Serial calibration/control interface
Customization	Custom mechanical and electrical modifications; Custom finishing; Custom software and performance modifications; Private labeling; 4-Port USB hub; CD/DVD or Blu-ray drive; Cable Management Guide



Optional Cable Management Guide keeps wiring secure and prevents tangling

SLIMLINE 1U LCD MONITORS



Rear view of SlimLine 1U 17.3 in storage position, with 83-key keyboard and 1/2" trackball. Options include front-facing DVD drive, 4-port USB hub.

FOOTNOTES

- 1 Shock and Vibration data reflect parameters for baseline industrial monitors. Military-grade monitors could sustain even greater shock and vibration levels. Please inquire with a Sales Engineer for more information.
- 2 Standard base enclosure dimensions listed. For a control drawing with complete dimensions, please contact a Sales Engineer.
- 3 Operating and Shipping Weight vary depending on selected keyboard and options/accessories.
- 4 This model has been designed and tested to be in NVIS compliance with MIL-STD-3009. Inquire with a Sales Engineer about obtaining other night vision goggle-compatible models.
- 5 Maximum video resolution listed. Speak with a Sales Engineer for a complete list of available resolutions.
- 6 Primary video inputs listed. Speak with a Sales Engineer about other video modes supported.
- 7 Although the video controllers can support multiple video inputs, space limitations may prevent access to certain connectors or routing of certain cables. Discuss your requirements with a Sales Engineer to devise a configuration that best suits your needs.
- 8 Default connector; specific configuration may require a different connector type.
- 9 Signal for the Keyboard/Pointing Device (DE-9 Socket on enclosure) provided separately via external cable.
- 10 All keyboard electronics, switch activators, optical pick-ups, bearings and connectors are protected against dirt, dust, liquids and general contamination.
- 11 Keyboard certified for MIL-STD-810: Sand/Dust, Salt/Fog, Spill/Rain, Shock (30 G), Vibration (1 G, 4–33 Hz).
- 12 Configured with the Model 62 keyboard, the SL1-19W meets TEMPEST Level 2 requirements.
- 13 Requires extended rack drawer, which increases the depth by 2".
- 14 Includes 6'7" AC power cable.
- 15 Since the SlimLine 1U Series does not include an embedded power supply, we strongly recommend the purchase of a General Digital-manufactured power supply, which is specially designed and tested to work with our LCD monitors. Note that this supply includes the required DC harness and connector to interface with the monitor.
- 16 FCC Certified and UL Approved.

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