SABER STANDALONE SOLAR™/LS19

Industrial-/Military-Grade, LED Backlit, Sunlight Readable Standalone/Mountable LCD Monitor

General Digital's Saber Standalone Solar/LS19 is a rugged, high performance sunlight readable LCD monitor intended for use in industrial and military environments. Incorporating our latest LED backlight capable of over 1000 nits luminance, the Saber Standalone Solar/LS19 features the following benefits over previous incarnations utilizing CCFL backlights:

- Brighter, more efficient backlight
- Reduced power consumption and heat generation
- Simplified cooling solutions
- Extended operating temperature, especially on the low end
- Minimal warm-up time
- Truer white reproduction and optimized color gamut
- No mercury content (flicker-free operation)
- Reduced EMI
- Low voltage level requirements permit high altitude operation
- Serial-parallel LED design provides "soft-failure" redundancy
- Solid-state design better tolerates shock and vibration

In the tradition of all Saber Series LCD monitors, the LS19 model is a highly versatile and configurable product that allows customers to select from a variety of video controllers, display overlays (touch screens, vandal shields, contrast filters, EMI filters, and heaters are some examples) and power supplies to personalize their monitor configuration to meet their price and performance objectives. Video controllers are available to support most inputs including Analog RGB, DVI, NTSC, SECAM, PAL, HD-SDI, SD-SDI and RS-170.

With the variety of video controllers offered, configurations can include numerous advanced imaging features, such as picture-in-picture, image rotation and inversion, and RS-232 control, just to name a few. The performance can be further enhanced by optically bonding the display overlays to the LCD. Optical bonding inherently improves the mechanical reliability of the LCD and minimizes internal reflections, thereby improving the contrast and readability of the monitor when exposed to high ambient light. Users can select a commercial-, industrial- or military-grade power supply, with or without power factor correction, and have it attached to the rear of the monitor, or operated remotely to minimize the monitor's depth.

General Digital has also developed optional brackets and bezels that facilitate various mounting techniques and/or the integration of a power supply. A Rack Mount Adaptor Bracket can be added in the field to convert it from a desktop monitor to a console/panel mount device. A Power Supply Bridge is available to mount an "attached" power supply. A VESA Mount Extender Bracket facilitates mounting to the rear of the enclosure when an attached power supply is selected.

Please feel welcome to consult with a General Digital Sales Engineer to discuss configuration options or request additional information, or visit our web site on-line at **www.GeneralDigital.com**.

QUICK LOOK

ENCLOSURE

- » Rugged, Industrial Grade, All-Metal Construction
- » Supports Standard VESA Mounting
  - 100 mm & 200 mm
- » Electronically -Controlled, Temperature Sensitive Cooling Fans
- » Built-in Dual Front-Mounted Speakers
  - Front-Accessible Volume and Mute Controls

DISPLAY/LED CONTROLLER

- » 19.0" Diagonal Active Matrix TFT LCD
- » SXGA (1280 x 1024 Pixels) Resolution
- » Wide Viewing Angle (Horizontal & Vertical)
- » Sunlight Readable LCD Monitor Employing LED Backlights
  - Class 5 (Weber Contrast Ratio of 8.56:0) per MIL-L-85762-A
  - Vibrant and Crisp Graphics with 925:1 Contrast Ratio
  - 1000:1 Dimming Control Via Proprietary LED Controller
- » LED Controller Regulates Fan Speed to Cool Internal Electronics and Minimize Audible Noise
  - In Over-Temperature Condition, Reduces Backlight Brightness & Power

VIDEO CONTROLLER

- » Supports Analog RGB and DVI Inputs
  - Analog RGB: 60 Hz @ SXGA, WXGA, XGA, SVGA, VGA
  - DVI-D: 60 Hz @ SXGA, WXGA, XGA, SVGA, VGA
- » Support for Interlaced and Non-Interlaced Video Sources
- » Support for Digital Separate Sync, Composite Sync, and Sync-on-Green
- » Resolutions to 1920 x 1200 @ 60 Hz (Scaled); Sub-resolutions to 85 Hz
- » Intuitive On-screen Menus for Display Calibration and User's Control
- » Advanced Imaging Features
  - Auto Picture Setup, Auto RGB Calibration, Auto Source Seek, Image Rotation & Inversion, Input Source Select, Picture-in-Picture, RS-232 Control and More

POWER

- » Attached or Separate AC Input Supply Provides +12 VDC
  - Power Factor Correction on Some Supplies
- » Low Power Consumption (~50 Watts)

OPTIONS

- » Display Overlays: Touch Screens, AR & AG Filters, Vandal Shields, Heaters, EMI Filters, Privacy Screens, More
- » Optical Bonding of Display Overlays for Mechanical Ruggedization and Improved Sunlight Readability
- » Field-Installable, Panel Mount Adaptor Bracket
- » VESA Mounting Extender Bracket
- » Variety of Video Controllers with Various Advanced Features
- » Attached, Power Factor Corrected, AC Input Power Supply or Low Cost, Consumer-Grade Remote Power Supply Brick
- » Automatic Brightness Adjustment Sensor
- » Custom Enclosures

Designed and Manufactured in the U.S.A.

GENERAL DIGITAL

The Innovators of Flat Panel Technology

OVER 30 YEARS OF FLAT PANEL SOLUTIONS

DISPLAY

	Size (Diag.)	Viewing Area (W x H)	Resolution (Pixels)	Number of Colors	Luminance (0° Max.)[1]	Contrast (Max.)[1,2]	Response Time (Rise/Decay)	Horizontal Viewing Angle	Vertical Viewing Angle	Shock	Vibration
SGD-19W-992	19.0"	14.82" x 11.85"	1280 x 1024	16.7 Million	350 Nits @ 4.3 W 1000 Nits @ 15.5 W 1390 Nits @ 22.5 W	993:1	5 ms	±85°	±80°	50 G, 20 ms, ½ Sine Wave	1.5 G, Random, (10—200—10 Hz)

1 Brightness and Contrast values reflect measurements obtained with a Minolta® CS100 photometer; these values are nominal and may vary.

2 Per MIL-L-85762-A, Class 5 (Weber contrast ratio of 9.25:0) with General Digital's antireflective coating.

VIDEO CONTROLLER[3]

dd	640 x 480 VGA	800 x 600 SVGA	1024 x 768 XGA	1280 x 1024 SXGA	1600 x 1200 UXGA	1920 x 1080 WUXGA	1920 x 1200 WUXGA	Scaling	NTSC / SECAM / PAL / RS-170	Video Supported
40[5]	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60, 75 Hz	60 Hz	60 Hz	60 Hz	On/Off	Digital Processor, Picture-in-Picture	Separate, Composite, Sync-on-Green, DVI-D, HDMI
41[5]	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60, 75 Hz	60 Hz	60 Hz	60 Hz	On/Off	–	Separate, Composite, Sync-on-Green
42[5]	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60, 75 Hz	60 Hz	60 Hz	60 Hz	On/Off	Digital Processor, Picture-in-Picture	Separate, Composite, Sync-on-Green
43[5]	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60, 75 Hz	60 Hz	60 Hz	60 Hz	On/Off	Digital Processor, Picture-in-Picture	DVI-D
44[5]	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60, 75 Hz	60 Hz	60 Hz	60 Hz	On/Off	–	Separate, Composite, Sync-on-Green, DVI-D
45	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60, 75 Hz	60 Hz	60 Hz	–	On/Off	–	Separate, Composite, Sync-on-Green, DVI-D, HDMI
46	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60, 75 Hz	60 Hz	60 Hz	60 Hz	On/Off	–	Separate, Composite, Sync-on-Green, DVI-D, HDMI
53[6]	60 Hz	56, 60 Hz	60 Hz	60 Hz	–	–	–	–	–	Separate, Composite, Sync-on-Green, DVI-D
55	60 Hz	56, 60 Hz	60 Hz	60 Hz	60 Hz	–	–	–	Digital Processor, Picture-in-Picture	Separate, Composite, Sync-on-Green
57[6]	60 Hz	56, 60 Hz	60 Hz	60 Hz	–	–	–	–	–	Separate, Composite, Sync-on-Green
60[5]	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60, 75 Hz	60 Hz	60 Hz	60 Hz	On/Off	Digital Processor, Picture-in-Picture, S-Video	Separate, Composite, Sync-on-Green, DVI-D
61[5]	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60, 75 Hz	60 Hz	60 Hz	60 Hz	On/Off	–	Separate, Composite, Sync-on-Green
62[5]	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60, 75 Hz	60 Hz	60 Hz	60 Hz	On/Off	Digital Processor, Picture-in-Picture	Separate, Composite, Sync-on-Green
63[5]	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60, 75 Hz	60 Hz	60 Hz	60 Hz	On/Off	Digital Processor, Picture-in-Picture	DVI-D
64[5]	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60, 75 Hz	60 Hz	60 Hz	60 Hz	On/Off	–	Separate, Composite, Sync-on-Green, DVI-D
65	60 Hz	56, 60 Hz	60 Hz	60 Hz	60 Hz	–	–	–	Digital Processor, Picture-in-Picture, S-Video	Separate, Composite, Sync-on-Green, DVI-D
67[5]	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60, 75 Hz	60 Hz	60 Hz	60 Hz	On/Off	–	DVI-D
68[5]	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60, 75 Hz	60 Hz	60 Hz	60 Hz	On/Off	Digital Processor, Picture-in-Picture, S-Video	Separate, Composite, Sync-on-Green, DVI-D, HD-SDI
69[5]	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60, 75 Hz	60 Hz	60 Hz	60 Hz	On/Off	Digital Processor, Picture-in-Picture, S-Video	DVI-D

3 Most common video inputs listed. Also supported are ARGB, S-Video, SD Component, HD Component, HD-SDI. Speak with a Sales Engineer for more information.

4 Most common video modes listed. Other video modes supported. Speak with a Sales Engineer for more information.

5 Supports advanced features such as Live Video, Picture-in-Picture (multiple user-selectable sizes), and Picture-by-Picture.

6 Maximum resolution available is 1366 x 768 @ 60 Hz.

Specifications subject to change without notice or obligation. Trademarks are the property of their respective owners.

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MTBF

Display	Backlight[7]	Inverter	Power Supply
>50,000 Hours (Minimum)	>50,000 Hours (Typical)[8]	Not Applicable	>100,000 Hours

7 The hours for MTBF refer to the half-life of the LED backlight; that is, the point at which the LEDs reach half of their original brightness. *It does not indicate the life expectancy of the LEDs.*

8 Represents typical half-brightness life expectancy when operated at maximum brightness; life expectancy will increase if operated below maximum brightness.

ENVIRONMENTAL

Temperature, Operating	Temperature, Storage	Humidity, Operating	Humidity, Storage	Altitude, Operating	Altitude, Storage
0° C to 50° C	-20° C to 60° C	5% to 90% RH Non-condensing	5% to 90% RH Non-condensing	10,000 Feet	40,000 Feet

MECHANICAL

Dimensions (H x W x D)	Construction	Finish	Mounting Holes	Weight, Operating	Weight, Shipping
15.00" x 17.75" x 4.63"	5052-H32 Aluminum	Black Matte Powder Coat	VESA Standard, 100 mm, 4 Places, Rear Custom, 200 mm, 4 Places, Rear	22 Pounds	27 Pounds

I/O CONNECTIONS

Power (DC)	On/Standby (DC)	Analog Video	DVI-D	Touch Screen
2W2 D-sub. Plug	LED on Membrane Pad	High Density 15-pin Socket	30-pin MicroCross	DE-9 Socket

CALIBRATION

dd	Interface	Functions	Advanced
40/41/42/43/44/45/46	On-screen Displays Navigated by 11-button Membrane Pad	Volume, Brightness, Contrast, Saturation, Hue, Sharpness, Backlight, Image Position (Horizontal & Vertical), Aspect Size (Scaling), Input Signal, Gamma, Utilities	Auto Source Seek, Auto Picture Setup, Auto Color Gain, Auto Power Off, Picture-In-Picture (Port, Position, Size, Transparency), Manual Clock & Phase, Color Temperature, Hot Keys, OSD (Position, Timeout, Language [English, Chinese], Transparency), Freeze, Zoom, Backlight Setup, Video Standard
53, 57	On-screen Displays Navigated by 11-button Membrane Pad	Brightness, Contrast, Saturation, Hue, Color Temperature, Gamma, Frequency, Phase, Image Position (Horizontal & Vertical), Scaling (to fit input to panel resolution)	Auto Source Seek, Auto Picture Setup, Auto RGB Calibration, OSD Position, OSD Timeout, OSD Menu Lock, Input Source Select, Direct Key for Brightness Level Adjustment, Serial Port Control
55, 65	On-screen Displays Navigated by 11-button Membrane Pad	Brightness, Contrast, Saturation, Hue, Color Temperature, Gamma, Clock, Phase, Sharpness, Image Position (Horizontal & Vertical)	Auto Source Seek, Auto Video Signal Select, Auto Picture Setup, Auto RGB Calibration, OSD (Position, Timeout), Video Standard, Reset
60/61/62/63/64/67/68/69	On-screen Displays Navigated by 11-button Membrane Pad	Volume, Brightness, Contrast, Saturation, Hue, Sharpness, Backlight, Image Position (Horizontal & Vertical), Aspect Size (Scaling), Input Signal, Gamma, Utilities	Auto Source Seek, Auto Picture Setup, Auto Color Gain, Auto Power Off, Picture-In-Picture (Port, Position, Size, Transparency), Manual Clock & Phase, Color Temperature, Hot Keys, OSD (Position, Timeout, Language [English, Chinese], Transparency), Freeze, Zoom, Backlight Setup, Video Standard

POWER SUPPLY[9]

hijj	Input Voltage Range	Output	Frequency Range	Line Entry Module/Filter	Power Factor Correction
EP02 (Rear Mount)	85–264 VAC	75 W /+12 VDC	47–63 Hz	Yes	0.95
EP03 (Rear Mount)	85–264 VAC	100 W / +12 VDC	47–63 Hz	Yes	0.95
EP07 (Rear Mount)	85–264 VAC	150 W / +12 VDC	47–63 Hz	Yes (IEC-320)	0.99
SA30 (Separate)	90–264 VAC	66 W /+12 VDC	47–63 Hz	–	–
SP31 (Separate)	90–264 VAC	100 W / +12 VDC	47–63 Hz	Yes (IEC-320)	0.95
0092 (None)	+12 VDC	Filtering and regulation provided by customer			

9 Includes 6'7" AC Power Cable.

OPTIONS   Ordered Separately — Please Inquire with a Sales Engineer for Additional Options and Accessories

DISPLAY OVERLAY (Other Overlays Available — Please Inquire with a Sales Engineer)

gg	Description	gg	Description
00	None	23	Vandal Shield, Clear Float Glass, Antiglare Etch Two Sides, 2 Panes Bonded (Laminated) Together (Not Bonded to LCD)
02	Clear Float Glass, Antiglare Etch Two Sides	24	Vandal Shield, Soda Lime Glass, Chemically Strengthened (Tempered), Antireflective Coating Two Sides
04	Clear Float Glass, Antireflective Coating Two Sides	35	Capacitive Touch Screen, Ideal Etch
21	Vandal Shield, Polycarbonate or Acrylic	51	Resistive Touch Screen

Type	Description
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; Cable Adaptors (HD 15-pin, 13W3 [SUN], BNC); NTSC/PAL Support; Picture-in-Picture
Remote Control	IR or Serial Calibration/Control Interface
Customization	Custom Mechanical and Electrical Modifications; Custom Finishing; Custom Software and Performance Modifications; Private Labeling

MODEL NUMBER CONFIGURATOR[10]

Model Style	Size & Resolution (*aab*)	Display (*ccc*)	Video Controller (*dd*)	Keyboard/Pointer (*ee*)	Industrial Enclosure (*ff*)	Display Overlay (*gg*)	Power Supply (*hijj*)
SGD-	19W-	992-	##-	00-	18-	##-	####

10 The pound symbol (#) indicates customer-defined values.

ORDERING

Part Number	Model Number[11]	Description
TBD	SGD-19W-992-***dd***-00-18-***gg***-***hijj***	Saber Standalone Solar/LS19, 19.0" Diagonal, SXGA, Standalone / Mountable, LED Backlit, Sunlight Readable, Ruggedized LCD Monitor
90-1204-003	—	Panel Mount Adaptor Bracket Option, 16.501" (H) x 19.251" (W), 8 Mounting Holes
90-1204-004	—	VESA Mounting Extender Bracket Option

11 ***Bold Italicized letters*** refer to standard customer-defined configurations (see Model Number Configurator above).

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Saber Standalone Solar without Rear Attached Power Supply

Saber Standalone Solar with Rear Attached Power Supply

Saber Standalone Solar with
Optional Panel Mount Adaptor Bracket

Saber Standalone Solar with
Rear Attached Power Supply,
Optional Panel Mount Adaptor Bracket and
Optional VESA Mounting Extender Bracket