SUNLIGHT READABLE FAA TOWER 20.1" LCD MONITOR

Sunlight Readable LCD Monitor Approved for STARS (Standard Terminal Automation Replacement System)

General Digital's™ second generation of its robust, 20.1", SXGA, LCD monitor—GenStar™ II—features a host of improvements including faster response time, a more efficient cooling system, reduced ghosting, ambient light sensing (optional), and more. The modular design approach of the GenStar II further enables the monitor to be reconfigured to meet specific customer performance requirements and budgetary expectations by omitting features/benefits from the default configuration that are deemed unnecessary.

As with the original, the GenStar II™ still features unprecedented performance and intelligence supported only by General Digital's™ revolutionary SmartBright™ backlight system, CoolBright™ cooling system, Intelligent Backlight Controller (IBC) and SmartLam™ optical management.

Even though our SmartBright™ backlight is capable of producing >1000 nits of luminance, this awesome horsepower is intelligently managed by our IBC for optimal performance. Where competitive products attempt to just add brute force to the luminance equation, this approach is typically done at the expense of reliability and contrast. Through the use of optical sensors and a proprietary algorithm, the IBC maintains the peak backlight luminance at 1000 nits while maintaining headroom for the bulbs to be driven to capacity to compensate for inevitable bulb decay. This unique implementation yields consistent and predictable performance from unit to unit while significantly extending the bulb life. In addition, the IBC provides flicker-free digital control of the monitor's brightness, making automatic adjustments to compensate for bulb decay and temperature changes.

Another common mistake in high luminance designs is the lack of proper thermal management. CoolBright™, a unique system, diffuses heat generated by SmartBright™ and solar radiation to ensure uniform and continuous operation up to 50° C ambient.

In addition to its aforementioned control responsibilities, the IBC also monitors and records key system performance data for future analysis. General Digital™ has simplified the analysis of this data through the use of our "Intelligent Replace Before Fail" (IRBF) ICARUS™ and DAEDALUS™ software utilities. Armed with these utilities, maintenance crews can track performance data, allowing them to predict potential failures, identify current failures, and evaluate the root cause of each type of failure. Proactive performance analysis facilitates service before occurrence of critical failures.

An added bonus is the integration of General Digital's™ SmartLam™ suite of optical enhancements to increase display contrast/clarity and reduce specular/diffuse reflections. Contrast improvements yield a deeper black background that makes data stand out in poor viewing conditions. Innovative use of light diffusing technology minimizes the adverse impact of glare.

To complement the SmartLam™, General Digital's™ Optical Bonding Laboratories division optically bonds a contrast filter to the display, further improving contrast and clarity while reducing reflections.

The GenStar™ can be customized to include a variety of standard and custom options including remote brightness control, mounting arms and pedestals, optical filters and more.

QUICK LOOK

ENCLOSURE

- Industrial Grade
- Rounded Corners Promote Operating Safety
- Side Mounting Supports a Variety of Pedestals, Cradles, Articulating Arms
- Rugged, All-Metal Construction with Matte Black Finish

DISPLAY

- High Performance, Full-Featured LCD Monitor
- Ideal for Air Traffic Control Applications
- SmartBright™ Sunlight Readable Backlight System
  - » Photometric Sensors Provide Monitor/Control Bulb Performance
  - » Capable of Generating >1200 Nits; Gated at 1000 Nits for Optimum Bulb Brightness/Life Expectancy
  - » Extremely High Contrast Ratio (see specifications for details)
  - » Greater than 20,000 Hours Life Expectancy for Backlights
  - » Interleaved Bulbs and Redundant Inverters Promote "Soft Failures"
  - » Variable Frequency Digital PWM Brightness Dimmer Module
- Large, 20.1" (Diagonal) Viewing Area
- SmartLam™ Optical Enhancements
  - » Contrast Enhancement Filter
  - » Antireflective Coatings and Etch
  - » Optical Bonding (Index Matched)
  - » Protective Shield for LCD

VIDEO CONTROLLER

- Multifrequency Support up to SXGA (1280 x 1024) Resolution
- Supports Separate, Composite, Sync-On-Green Video Sources
- CoolBright™ Backlight Cooling System
  - » Counteracts Thermal Contributions from SmartBright™ and Solar Radiation
  - » Combination of Active and Passive Cooling
  - » Enables Normal Operation from 0° to 50° C
- Intelligent Backlight Controller™ (IBC)
  - » Microprocessor Controls System Performance Avoiding Critical Failures by Implementing "Soft Failure" Algorithms
  - » Digital Brightness Control with Flicker-free Operation Over Full Range of Brightness (500:1)
  - » Auto Adjusts Brightness by Compensating for Bulb Decay and Temperature Changes
  - » Monitors and Records Critical Hardware/Environmental Performance and Failures Using Date/Time Stamp Log
  - » Built-in Test Indicators (LEDs)
  - » Ambient Light Sensing (Optional)
- Intelligent Replace Before Fail™ (IRBF) Software Utilities ICARUS & DAEDALUS
  - » Analyze Performance/Failure Data to Facilitate Failure Diagnosis and Service

POWER

- Integrated AC Power Supply (Power Factor Correction Optional)
- Field-replaceable Power Supply and Cooling Fans
- UL60950-1 and FCC Class A Certified

Designed and Manufactured in the U.S.A.

Please feel welcome to consult with a General Digital™ Sales Engineer for additional information, or visit our web site: www.GeneralDigital.com.

GENERAL DIGITAL™

The Innovators of Flat Panel Technology

DISPLAY

Size (Diagonal)	Viewing Area (W x H)	Resolution (Pixels)	Number of Colors	Response Time (Typ.)	Horizontal Viewing Angle [1]	Vertical Viewing Angle [1]	Shock	Vibration
20.1"	15.72" x 12.58"	1280 x 1024	16.7 Million	25 ms	±85°	±85°	30 G, 11 ms Sine Wave	1.2 G (5–100 Hz)

1 Contrast decreases as viewing angle increases from 0°.

Contrast Ratio – Typical[2]

Viewing Angle		Low Ambient Contrast (<5000 ft-candle)				High Ambient Contrast (6000 ft-candle)			
Horizontal	Vertical	White	Red	Green	Blue	White	Red	Green	Blue
-80°	0°	128.6	38.5	79.1	12.2	9.4	3.5	6.1	1.7
-45°	0°	180.7	56.9	115.9	19.6	19.4	6.7	12.8	2.9
-30°	0°	221.3	64.5	133.7	24.1	22.7	7.3	14.1	3.3
0°	0°	301.4	85.8	181.3	33.7	24.5	7.6	15.1	3.6
30°	0°	287.8	84.7	172.5	30.2	23.7	7.6	14.6	3.3
45°	0°	252.2	74.3	151.8	25.6	21.2	6.9	13.1	3.0
80°	0°	140.7	42.3	85.3	13.3	8.7	3.3	5.6	1.7
0°	80°	41.1	13.4	27.7	4.3	2.5	1.5	2.0	1.1
0°	45°	153.6	45.6	92.9	16.5	10.3	3.7	6.6	1.9
0°	30°	240.0	71.0	143.0	25.7	18.2	6.0	11.2	2.8
0°	-30°	234.4	68.8	140.8	25.4	19.2	6.3	11.9	2.9
0°	-45°	154.9	46.2	93.5	16.4	11.2	4.0	7.2	2.0
0°	-80°	73.1	19.8	47.1	6.9	4.6	1.9	3.3	1.3

2 Configured with *SmartLam*™ enhancements, 75% contrast filter and contrast setting @ 90% of maximum

Contrast Ratio – Typical[3]

Viewing Angle		Low Ambient Contrast (<5000 ft-candle)				High Ambient Contrast (6000 ft-candle)			
Horizontal	Vertical	White	Red	Green	Blue	White	Red	Green	Blue
-80°	0°	109.9	31.8	68.0	10.8	9.7	3.5	6.4	1.8
-45°	0°	189.8	55.8	113.2	22.1	32.7	10.2	19.8	4.5
-30°	0°	206.2	58.5	125.5	22.9	35.7	10.7	22.0	4.7
0°	0°	262.8	72.4	159.0	30.9	39.7	11.6	24.4	5.4
30°	0°	259.1	73.4	157.9	28.9	38.0	11.4	23.5	5.0
45°	0°	234.0	67.2	142.3	24.7	34.6	10.5	21.3	4.4
80°	0°	122.8	35.8	79.9	12.0	12.0	4.1	8.1	2.0
0°	80°	61.3	18.3	38.5	6.5	4.3	1.9	3.0	1.3
0°	45°	144.7	42.4	87.8	15.8	17.6	5.8	11.1	2.7
0°	30°	205.8	58.4	124.7	23.0	29.5	9.0	18.2	4.1
0°	-30°	236.4	65.7	143.4	26.9	33.6	10.0	20.7	4.6
0°	-45°	162.4	46.9	98.0	17.8	20.1	6.4	12.5	3.0
0°	-80°	61.3	18.2	38.2	6.4	4.0	1.8	2.8	1.3

3 Configured with *SmartLam*™ enhancements, 62% contrast filter and contrast setting @ 90% of maximum

Reflectance[4]

	Diffuse Reflectance			Specular Reflectance		
	Tile Brightness	Screen Brightness	Diffuse Reflection	Reflection Off Standard	Display Surface Reflectance	Specular Reflection
Low Ambient	1398 nits	1.93 nits	0.14%	463 nits	2.37 nits	0.51%
High Ambient	4232 nits	4.96 nits	0.12%			

Luminance (max.)

Clear/Notch Filter	75% Contrast Filter	62% Contrast Filter	32% Contrast Filter
1000–1200 nits	750–900 nits	620–744 nits	320–384 nits

4 Recommended configuration with *SmartLam*™ enhancements and 75% contrast filter

VIDEO CONTROLLER

	Resolution/Frequency[5]						
dd	640 x 480	720 x 400	800 x 600	1024 x 768	1280 x 1024	Scaling	Analog Video Supported
07	60, 67, 72, 75, 85 Hz	70, 85 Hz	56, 60, 72, 75, 85 Hz	60, 70, 72, 75, 85, 87 Hz	60, 67, 72, 75 Hz	Always On	Separate, Composite, Sync-On-Green

5 Most common video modes listed. Other video modes supported; speak with a Sales Engineer for more information.

MTBF

Mean Time Between Failure @ 25° C

Display	Backlight[6, 7]	Video Controller	Backlight Inverter	Power Supply
>31,2000 hours	>20,000 hours	>100,000 hours	>20,000 hours	300,000 hours

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

7 The MTBF of the backlight is dependent upon the average daily luminance of the backlight.

ENVIRONMENTAL

Temperature (Operating)	Temperature (Storage)	Altitude (Operating)	Altitude (Storage)
0° C to 50° C	-20° C to 60° C	12,000 feet	25,000 feet

CERTIFICATIONS

UL60950-1; FCC Class A

MECHANICAL

Enclosure (H x W x D)	Construction	Mounting Holes	Weight, Operating	Weight, Shipping
17.00" x 19.50" x 6.50"	0.090" Aluminum	1/4-20 x 0.31" deep, 4 places each side (L, R)	35 Pounds	44 Pounds

I/O CONNECTIONS

Power (AC)	On/Off	Video	IBC	Backlight Brightness	Remote Brightness
AC Socket (IEC)	Rocker Switch	BNC (5)	DE-9, Socket	Potentiometer, 10K, Local/10K, Remote Optional	6-pin, Circular, Locking

CALIBRATION

Interface	Functions	Advanced
On-screen Displays (OSD) Navigated by 5- or 7-button Membrane Pad (Front Access Via Hinged Panel)	Horizontal Image Position, Vertical Image Position, Size (Internal Pixel Clock), Focus, Brightness, Contrast, Auto Adjust (Position and Width), Color, On-screen Diagnostics, OSD Position, Gamma, Language, Auto Gamma Correction	Image Expansion to Fill Screen

POWER SUPPLY[8] *hijj*

Consumption (max.)	Voltage Range	Frequency Range	Line Entry Module/Filter
210 Watts	90–132 & 180–264	47–63 Hz	Yes

8 Includes 6'7" AC Power Cable.

MODEL NUMBER CONFIGURATOR

Model Style	Size & Resolution (***aab***)	Display (***ccc***)	Video Controller (***dd***)	Keyboard/Pointer (***ee***)	Industrial Enclosure (***ff***)	Display Overlay (***gg***)	Power Supply (***hijj***)
UB-	20W-	803-	07-	00-	01-	63-[9]	EA25

9 A 75% contrast filter is provided as standard equipment; speak with a Sales Engineer for other display overlay options.

ORDERING

Model Number[10]	Part Number[11]	Model Name	Description
UB-20W-803-07-00-01-63-EA25	90-850-084-A	GenStar™ II	20.1" Diagonal, SXGA, Sunlight Readable, Standalone LCD Monitor for FAA Towers

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

11 A unique part number for each configuration will be assigned at order placement.

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February 2007