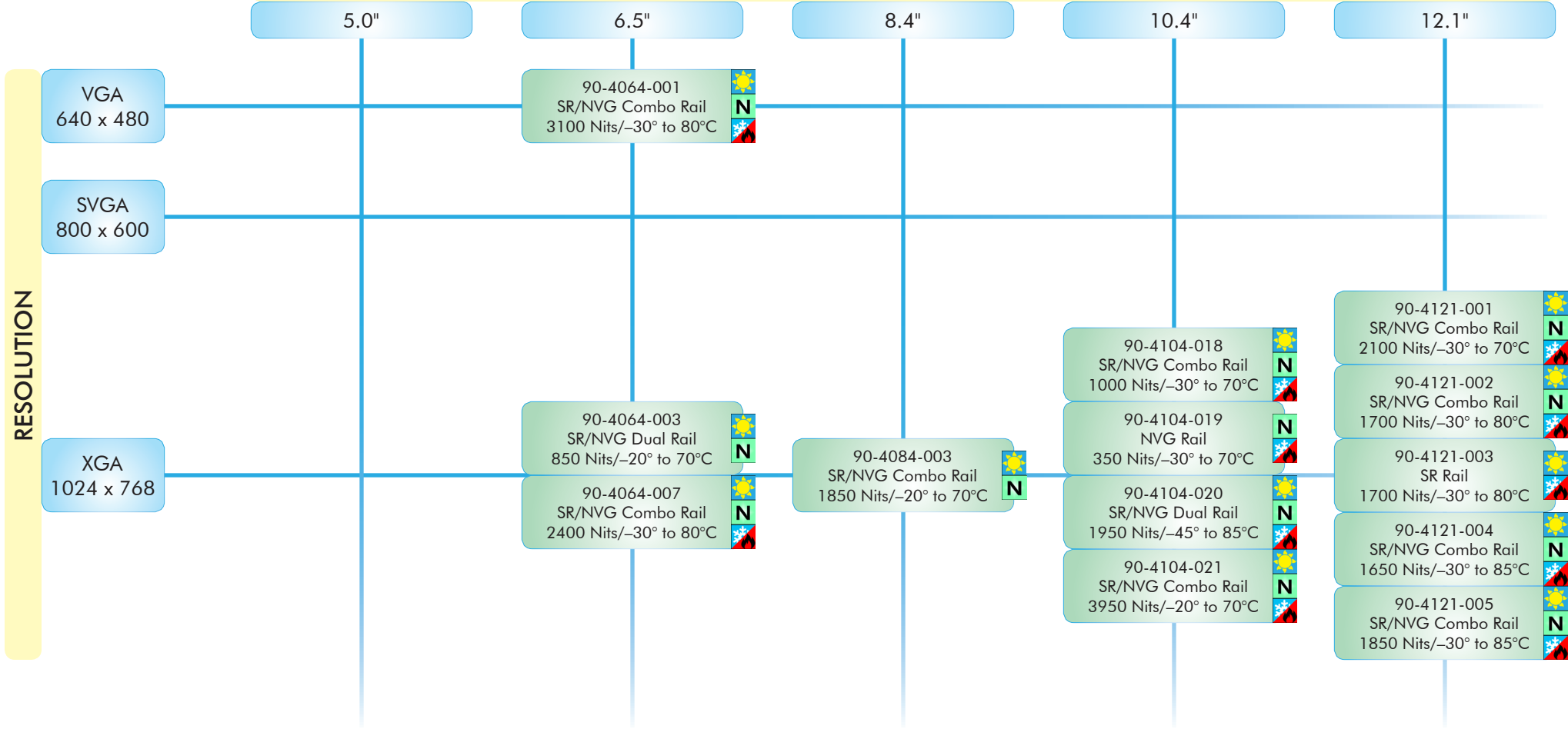


ENHANCED DISPLAYS LINE-UP

Last Update: 5 January 2019

4:3 aspect ratio

DISPLAY SIZE (diagonal)



In Production
In Development
End of Life

High Brightness
 NVG Compatible
 Extended Operating Temperature Range
 Transflective Backlight

ENHANCED DISPLAYS LINE-UP

Last Update: 5 January 2019

4:3/5:4 aspect ratio

DISPLAY SIZE (diagonal)

	15.0"	17.0"	19.0"	20.1"	21.3"	
RESOLUTION	XGA 1024 x 768	90-4150-010 SR/NVG Combo Rail 900 Nits/-20° to 70°C				
		90-4150-011 SR Rail 1350 Nits/-30° to 85°C				
		90-4150-012 SR/NVG Combo Rail 1350 Nits/-30° to 85°C				
	SXGA 1280 x 1024		90-4170-005 SR/NVG Combo Rail 950 Nits/-30° to 85°C	90-4190-009 SR Rail 1550 Nits/0° to 50°C		
			90-4170-006 SR Rail 950 Nits/-30° to 85°C	90-4190-010 SR/NVG Combo Rail 950 Nits/0° to 50°C		
				90-4190-013 SR/NVG Combo Rail 1300 Nits/-30° to 85°C		
	UXGA 1600 x 1200				90-4201-007 Std/NVG Combo Rail 550 Nits/0° to 60°C	90-4213-002 SR/NVG Combo Rail 1200 Nits/0° to 60°C
						90-4213-003 SR Direct Lit Backlit 1950 Nits/0° to 60°C
						90-4213-004 SR Direct Lit Backlit 1200 Nits/0° to 50°C















In Production	In Development	End of Life	High Brightness	NVG Compatible	Extended Operating Temperature Range	Transflective Backlight
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ENHANCED DISPLAYS LINE-UP

Last Update: 5 January 2019

16:9 aspect ratio

DISPLAY SIZE (diagonal)

		15.6"	17.3"	18.5"	21.5"	24.0"
RESOLUTION	FHD 1920 x 1080	90-4156-002 SR Edge Lit Backlight 1350 Nits/-10° to 70°C 	90-4173-001 SR/NVG Combo Rail 950 Nits/0° to 70°C  	90-4185-001 SR/NVG Combo Rail N/A Nits/N/A° to N/A°C  	90-4215-003 SR/NVG Combo Rail 850 Nits/0° to 50°C  	90-4240-002 SR/NVG Combo Rail 750 Nits/-20° to 70°C  
	WQHD 2560 x 1440	90-4156-003 SR/NVG Combo Rail 1300 Nits/-10° to 70°C  			90-4215-006 SR Direct Lit Backlight 1050 Nits/0° to 50°C 	90-4240-003 SR/NVG Combo Rail 900 Nits/0° to 50°C  
	4K 4096 x 2160					

In Production	In Development	End of Life	 High Brightness	 NVG Compatible	 Extended Operating Temperature Range	 Transflective Backlight
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ENHANCED DISPLAYS LINE-UP

Last Update: 5 January 2019

SPECIFICATIONS

	6.4"/6.5"			8.4"	10.4"	
Part Number	90-4064-001	90-4064-003	90-4064-007	90-4084-003	90-4104-018	90-4104-019
Status	In Production	In Production	In Production	In Production	In Production	In Production
Resolution	640 x 480	1024 x 768	1024 x 768	1024 x 768	1024 x 768	1024 x 768
Brightness @ Rail Temp.	3100 nits @ 50°C	850 nits @ 50°C	2400 nits @ 65°C	1850 nits @ 47°C	1000 nits @ 60°C	350 nits @ 50°C
Contrast Ratio	650:1	850:1	650:1	700:1	1100:1	N/A
Weber Class	6	5	6	6	5	N/A
Display Mode	SR/NVIS	SR/NVIS	SR/NVIS	SR/NVIS	SR/NVIS	NVIS
Colors	6-bit/6-bit + FRC	6-bit/6-bit + FRC	8-bit	6-bit/8-bit + Hi-FRC	6-bit/6-bit + FRC	6-bit/6-bit + FRC
Response Time	3/15 ms	6/19 ms	30 ms	13/12 ms	14/11 ms	14/11 ms
Viewing Angle	±80° H/±80° V	±80° H/+80, -60° V	±85° H/±85° V	±88° H/±88° V	±88° H/±88° V	±88° H/±85° V
NTSC	40%	36%	60%	71%	55%	55%
Technology	TN	TN	LTPS TFT	α-Si TFT	Super MVA	Super MVA
Operating Temperature	-30°C to 80°C	-20°C to 70°C	-30°C to 80°C	-20°C to 70°C	-30°C to 70°C	-30°C to 70°C
Storage Temperature	-30°C to 80°C	-30°C to 80°C	-30°C to 80°C	-30°C to 80°C	-30°C to 80°C	-30°C to 80°C
Backlight Power	8 W	29 W	8.9 W	10.5 W	17 W	13 W
Enhancements	  	 	  	 	  	 

Specifications subject to change without notice or obligation.

ENHANCED DISPLAYS LINE-UP

Last Update: 5 January 2019

SPECIFICATIONS

	10.4"		12.1"				
Part Number	90-4104-020	90-4104-021	90-4121-001	90-4121-002	90-4121-003	90-4121-004	90-4121-005
Status	In Production	In Production	In Production	In Production	In Production	In Production	In Production
Resolution	1024 x 768	1024 x 768	1024 x 768	1024 x 768	1024 x 768	1024 x 768	1024 x 768
Brightness @ Rail Temp.	1950 nits @ 70°C	3950 nits @ 60°C	2100 Nits @ 50°C	1700 Nits @ 50°C	1700 Nits @ 50°C	1650 Nits @ 70°C	1850 Nits @ 70°C
Contrast Ratio	1250:1	850:1	950:1	850:1	850:1	700:1	700:1
Weber Class	6	6	5	5	5	6	5
Display Mode	SR/NVIS	SR/NVIS	SR	SR/NVIS	SR	SR/NVIS	SR/NVIS
Colors	6-bit/6-bit + FRC	6-bit/8-bit	6-bit/6-bit + FRC	6-bit/6-bit + FRC	6-bit/6-bit + FRC	6-bit/8-bit	6-bit/8-bit
Response Time	25 ms	16 ms	5/11 ms	5/11 ms	5/11 ms	35 ms	35 ms
Viewing Angle	±88° H/±85° V	±75° H/+60, -70° V	±80° H/±70° V	±80° H/±70° V	±80° H/±70° V	±80°/±80°	±80°/±80°
NTSC	70%	50%	63%	63%	63%	76%	75%
Technology	ADS	TN	α-Si TFT	α-Si TFT	α-Si TFT	Si TFT	Si TFT
Operating Temperature	-45°C to 85°C	-20°C to 70°C	-30°C to 70°C	-30°C to 80°C	-30°C to 80°C	-30°C to 85°C	-30°C to 85°C
Storage Temperature	-55°C to 85°C	-30°C to 80°C	-40°C to 80°C	-40°C to 85°C	-40°C to 85°C	-30°C to 85°C	-30°C to 85°C
Backlight Power	17 W	11 W	12 W	14 W	14 W	10.5 W	10.5 W
Enhancements	  	  	  	  	 	  	  

Specifications subject to change without notice or obligation.

ENHANCED DISPLAYS LINE-UP

Last Update: 5 January 2019

SPECIFICATIONS




	15.0"			15.6"		17.0"	
Part Number	90-4150-010	90-4150-011	90-4150-012	90-4156-002	90-4156-003	90-4170-005	90-4170-006
Status	In Production	In Production	In Production	In Production	In Production	In Production	In Production
Resolution	1024 x 768	1024 x 768	1024 x 768	1920 x 1080	1920 x 1080	1280 x 1024	1280 x 1024
Brightness @ Rail Temp.	900 nits @ 50°C	1350 nits @ 50°C	1350 nits @ 50°C	1350 nits @ 55°C	1300 nits @ 55°C	950 nits @ 50°C	950 nits @ 50°C
Contrast Ratio	1150:1	1100:1	1100:1	650:1	500:1	800:1	800:1
Weber Class	5	4	4	5	5	5	5
Display Mode	SR/NVIS	SR	SR/NVIS	SR	SR/NVIS	SR/NVIS	SR
Colors	6-bit/8-bit	6-bit/6-bit + FRC	6-bit/6-bit + FRC	8-bit	6-bit/6-bit + FRC	6-bit/6-bit + FRC	6-bit/8-bit
Response Time	3/5 ms	5.7/2.3 ms	5.7/2.3 ms	8 ms	8 ms	5.7/2.3 ms	5.7/2.3 ms
Viewing Angle	±80° H/±80° V	±80° H/+60, -80° V	±80° H/+60, -80° V	±80° H/±70° V	±70° H/±60° V	±85° H/±80° V	±85° H/±80° V
NTSC	60%	60%	60%	74%	75%	60%	60%
Technology	TN	TN	ADS	Si TFT	Si TFT	TN	TN
Operating Temperature	-20°C to 70°C	-30°C to 85°C	-30°C to 85°C	-10°C to 70°C	-10°C to 70°C	-30°C to 85°C	-30°C to 85°C
Storage Temperature	-30°C to 80°C	-30°C to 85°C	-30°C to 85°C	-20°C to 70°C	-20°C to 70°C	-30°C to 85°C	-30°C to 85°C
Backlight Power	13 W	13 W	13 W	18 W	18 W	22 W	22 W
Enhancements	 	 	  		 	  	 

Specifications subject to change without notice or obligation.

ENHANCED DISPLAYS LINE-UP

Last Update: 5 January 2019

SPECIFICATIONS








	17.3"	18.5"	19.0"			20.1"
Part Number	90-4173-001	90-4185-001	90-4190-009	90-4190-010	90-4190-013	90-4201-007
Status	In Production	In Development	In Production	In Production	In Production	In Production
Resolution	1920 x 1080	1920 x 1080	1280 x 1024	1280 x 1024	1280 x 1024	1600 x 1200
Brightness @ Rail Temp.	950 nits @ 55°C	N/A	1550 nits @ 50°C	950 nits @ 50°C	1300 nits @ 60°C	550 nits @ 50°C
Contrast Ratio	900:1	N/A	1000:1	N/A	1150:1	1200:1
Weber Class	5	N/A	5	5	6	4
Display Mode	SR/NVIS	SR/NVIS	SR	SR/NVIS	SR/NVIS	STD/NVIS
Colors	8-bit	N/A	6-bit + FRC	6-bit + FRC	6-bit + FRC	8-bit
Response Time	37/3 ms	N/A	3.6/1.4 ms	3.6/1.4 ms	7/3 ms	30 ms
Viewing Angle	±80° H/+60, -80° V	N/A	±85° H/±80° V	±85° H/±80° V	±85° H/±80° V	±85° H/±85° V
NTSC	78%	N/A	72%	72%	75%	71%
Technology	α-Si LCM	N/A	TN	TN	Si TFT	VA
Operating Temperature	0°C to 70°C	N/A	0°C to 50°C	0°C to 50°C	-30°C to 85°C	0°C to 60°C
Storage Temperature	-30°C to 75°C	N/A	-20°C to 60°C	-20°C to 60°C	-30°C to 85°C	-25°C to 60°C
Backlight Power	22 W	N/A	22 W	17 W	29 W	23 W
Enhancements	 	 		 	  	

Specifications subject to change without notice or obligation.

ENHANCED DISPLAYS LINE-UP

Last Update: 5 January 2019

SPECIFICATIONS

	21.3"			21.5"		24.0"	
Part Number	90-4213-002	90-4213-003	90-4213-004	90-4215-003	90-4215-006	90-4240-002	90-4240-003
Status	In Production	In Production	In Production	In Production	In Production	In Production	In Production
Resolution	1600 x 1200	1600 x 1200	1600 x 1200	1920 x 1080	1920 x 1080	1920 x 1080	1920 x 1080
Brightness @ Rail Temp.	1200 nits @ 50°C	1950 nits @ 50°C	1200 nits @ 50°C	850 nits @ 50°C	1050 nits @ 50°C	750 nits @ 45°C	900 nits @ 50°C
Contrast Ratio	1300:1	1200:1	1300:1	3450:1	7450:1	4200:1	3350:1
Weber Class	5	6	6	5	6	6	2
Display Mode	SR/NVIS	SR	SR	SR/NVIS	SR	SR/NVIS	SR/NVIS
Colors	8-bit	8-bit	8-bit	8-bit	8-bit	8-bit	8-bit
Response Time	40 ms	40 ms	15/15 ms	20/5 ms	20/5 ms	16/9 ms	16/9 ms
Viewing Angle	±88° H/±88° V	±88° H/±88° V	±89° H/±89° V	±89° H/±89° V	±89° H/±89° V	±89° H/±89° V	±88° H/±88° V
NTSC	72%	72%	N/A	75%	75%	77%	72%
Technology	UA-SFT	UA-SFT	α-Si TFT	AMVA3	AMVA3	α-Si LCM	AMVA3
Operating Temperature	0°C to 60°C	0°C to 60°C	0°C to 50°C	0°C to 50°C	0°C to 50°C	-20°C to 70°C	0°C to 50°C
Storage Temperature	-20°C to 60°C	-20°C to 60°C	-20°C to 60°C	-20°C to 60°C	-20°C to 60°C	-30°C to 80°C	-20°C to 60°C
Backlight Power	63 W	80 W	25 W	29 W	29 W	28 W	32 W
Enhancements	 			 		 	 

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ENHANCED DISPLAYS LINE-UP

Last Update: 5 January 2019

What is Weber Contrast?

Weber contrast is an important attribute to consider when selecting a display for use in high ambient brightness environments. Unlike the standard contrast value, which is measured in ideal conditions (dark room), the Weber contrast is measured under the simulated effects of direct sunlight

(10,000 fc direct and 2,000 fL Lambertian light sources). General Digital determines and records the Weber contrast using the test procedure described in MIL-L-85762A. To simplify and quantify the engineering challenge of qualifying a panel for use in high ambient brightness

conditions, we created our own unique metric (Weber Class), which is derived directly from Table II of MIL-L-85762A. This data establishes that the larger the Weber Class number, the better the display will perform in high ambient brightness conditions.

WEBER CONTRAST LOOKUP CHART

Display Class	Contrast Range	Short Description	Ideal Applications
Class 1	0.00 to 1.49	Not sunlight readable	Not suitable for direct sunlight use
Class 2	1.50 to 1.99	Numeric ONLY	Useful for numerics only in direct sunlight
Class 3	2.00 to 2.99	Alphanumeric	Useful for characters and numerical data
Class 4	3.00 to 4.659	Graphic symbols and alphanumerics	Useful for characters, numerical data and static images
Class 5	4.66 to 10.29	Acceptable video performance	Useful for characters, numerical data, static images and low quality video (6 $\sqrt{2}$ shades of gray with counting off as 1)
Class 6	10.3 and higher	Best case video performance	Useful for characters, numerical data, static images and high quality video (eight or more $\sqrt{2}$ shades of gray with counting off as 1)

GENERAL DIGITAL CORPORATION

8 Nutmeg Road South
South Windsor, Connecticut 06074
800.952.2535 | 860.282.2900
gdc_info@generaldigital.com

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