

IMPACT SOLAR™ MONITOR KIT

Industrial-/Military-Grade, High Brightness, Open Frame LCD Monitor Kit

In its native form, the **IMPACT SOLAR SMK SERIES** is intentionally designed as the most basic turnkey monitor General Digital can produce. Unlike most of our complete LCD monitor offerings, the DMK/SMK Series is comprised of the bare necessities and does not include features such as a protective enclosure, thermal management, etc. The kit is intended to offer our OEM customers with an economical, turnkey product that can be easily integrated into your existing products, consoles, protective enclosures or kiosks.

Integrated into every unit are the latest advances in LCD display technology. All of our active matrix TFT LCD screens offer up to 16.7 million colors, wide viewing angles, and fast response times (suitable for live video). We qualify multiple sources of supply to ensure product availability and long life.

The LCD display, control electronics and cabling are all secured to a sturdy, metal mounting frame, which facilitates installation.

Modular adaptability is the **IMPACT SOLAR SCM SERIES'** domain.

Their lightweight enclosures have been optimized to reduce cost, protect the monitors' electronics and facilitate a variety of mounting schemes. This inherent flexibility permits Integrators and VARs (Value Added Resellers) to quickly and easily design and manufacture their end-products around our fully functional display modules.

For OEMs/End Users, General Digital offers a series of optional bezels and enclosures that allow the DCM/SCM Series to be transformed into standalone, panel mount or rack mount monitor units.

The low power DCM/SCM Series is designed to operate from a single +12V regulated source. Customers can provide their own power supply, request a custom supply, or choose our standard power supply configuration, featuring a power-factor-corrected AC switching supply. Additionally, this series is designed with the intent to meet UL 60950 and FCC Class A Certification.

Sunlight readability is achieved using our **GENFLECTIVE™** technology, which is a passive approach to brightness and contrast enhancement. Using a proprietary combination of reflective, brightness and contrast enhancing films, sunlight readable performance is achieved. General Digital developed GenFlective technology to improve daylight and sunlight readable brightness and contrast performance without increased power consumption, heat emission, and backlight augmentation. Another benefit is increased backlight bulb life expectancy.

Please feel welcome to consult a General Digital Sales Engineer for additional information, or visit www.GeneralDigital.com.

QUICK LOOK

ENCLOSURE

- » Light Weight, Modular Enclosure of DCM/SCM Series Facilitates Customer Integration
- » Pre-designed Bezels & Enclosures Available to Transform Into a Panel Mount, Rack Mount or Standalone Device
- » Low Cost, Open Frame Design of Series is Ideal for OEMs
- » Sturdy Metal Mounting Frame/Panel Simplifies OEM Integration
- » Versatile Enclosures may be Mounted from the Front or the Rear
- » Rugged, All-Metal Construction

DISPLAY

- » 6.5" to 24.0" Diagonal Active Matrix TFT LCD Display
- » VGA (640 x 480 pixels) to WUXGA (1920 x 1080 pixels) Resolution
- » Wide Viewing Angle (Horizontal & Vertical)
- » Several Models Improve Sunlight Readability by Employing GenFlective™ Technology to Enhance Brightness and Contrast

VIDEO CONTROLLER

- » Support for Interlaced and Non-Interlaced Video Sources
- » Support for Separate, Composite, Sync-On-Green, DVI-D, SDI Standards
- » Support for NTSC, SECAM, PAL, RS-170 Video Input
- » Resolutions to 1920 x 1200 @ 60 Hz (Native); Sub-resolutions to 75 Hz
- » Intuitive On-screen Menus for Display Calibration and User's Control
- » Advanced Imaging Features
 - Auto Adjust, Brightness/Contrast/Color Adjustments, Image Expansion, Image Zoom, Foreign Languages, PIP, PBP, More

POWER

- » Separate AC Input Supply Provides +12 VDC to Monitor
- » Low Power Consumption (<50 Watts)

OPTIONS

- » NVIS-Compatible Displays Compliant with MIL-STD-3009
- » Optical Enhancements
- » Automatic Brightness Adjustment Sensor
- » Protective Glass Display Overlays
- » Capacitive and Resistive Touch Screens
- » Support for DVI-D Video, HDMI Video, NTSC Video (Composite)
- » External Power Supplies (AC, DC, Power Factor Correction, More)
- » Audio Add-on Board for Stereo Speaker Control

CERTIFICATIONS

- » The Impact DCM/SCM Solar Series is Designed with the Intent to Meet UL 60950 and FCC Class A Certification when Configured with the General Digital-Supplied Power-Factor-Corrected AC Power Supply

Designed and Manufactured in the U.S.A.



DISPLAY

	Size (Diagonal)	Viewing Area (W x H)	Resolution (Pixels)	Number of Colors	Luminance (0° Max.)	Contrast (Max.)	Response Time (Rise/Decay)	Horizontal Viewing Angle	Vertical Viewing Angle	Shock [1]	Vibration [1]
SMK-06V-105	6.5"	5.22" x 3.91"	640 x 480	16.2 Million	700 Nits	600:1	15/10 ms	± 80°	± 70°	50 G, 20 ms ½ Sine Wave	1.5 G (10–200 Hz)
SMK-06V-9005	6.5"	5.22" x 3.91"	640 x 480	16.7 Million	1000 Nits	800:1	3/15 ms	± 80°	± 80°	54 G, 11 ms ½ Sine Wave	2.0 G (5–100 Hz)
SMK-06X-9004	6.5"	5.20" x 3.90"	1024 x 768	16.7 Million	650 Nits	500:1	6/19 ms	± 80°	+ 80° -60°	54 G, 11 ms ½ Sine Wave	2.0 G (5–100 Hz)
SMK-08S-9007	8.4"	6.71" x 5.03"	800 x 600	16.7 Million	800 Nits	800:1	3/15 ms	± 80°	± 80°	54 G, 11 ms ½ Sine Wave	2.0 G (5–100 Hz)
SCM-15X-989	15.0"	11.97" x 8.98"	1024 x 768	16.7 Million	600 Nits	600:1	3/5 ms	± 80°	± 80°	30 G, 11 ms ½ Sine Wave	1.0 G (5–100 Hz)
SNCM-17W-956[3]	17.0"	13.30" x 10.64"	1280 x 1024	16.7 Million	932 Nits [2]	813:1 [2]	3.5/1.5 ms	± 85°	± 85°	50 G, 20 ms ½ Sine Wave	1.5 G (10–200 Hz)
SNCM-19W-993[3]	19.0"	14.81" x 11.85"	1280 x 1024	16.7 Million	1000 Nits [2]	700:1 [2]	3.6/1.4 ms	± 85°	± 80°	50 G, 11 ms ½ Sine Wave	1.5 G (10–300 Hz)
SNCM-22D-987[3]	21.5"	18.77" x 10.56"	1920x 1080	16.7 Million	1040 Nits [2]	7430:1 [2]	20/5 ms	± 89°	± 89°	50 G, 20 ms ½ Sine Wave	1.5 G (10–200 Hz)
SCM-24D-9014	24.0"	20.92" x 11.77"	1920x 1080	16.7 Million	850 Nits [2]	3000:1 [2]	16/9 ms	± 89°	± 89°	50 G, 20 ms ½ Sine Wave	1.5 G (10–200 Hz)

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

3 This model has been designed and tested to be NVIS compatible to MIL-STD-3009. Inquire with a Sales Engineer about obtaining other night vision goggle-compatible models.

VIDEO CONTROLLER [4]

ddd	Display Supported	Resolution/Frequency [5]								Scaling	NTSC / SECAM / PAL / RS-170	Video Supported
		640 x 480 VGA	800 x 600 SVGA	1024 x 768 XGA	1366 x 768 WXGA	1280 x 1024 SXGA	1600 x 1200 UXGA	1920 x 1200 WUXGA				
115 [6, 7]	All	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60 Hz	60, 75 Hz	60 Hz	60 Hz	On/Off	–	Separate, Composite, Sync-On-Green, DVI-D	
117 [6]	All	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60 Hz	60, 75 Hz	–	60 Hz	On/Off	–	Separate, Composite, Sync-On-Green, DVI-D	
121 [6]	All	60, 72, 75 Hz	56, 60, 72, 75 Hz	60, 70, 75 Hz	60 Hz	60, 75 Hz	–	60 Hz	On/Off	Digital Processor, Picture-in-Picture	Separate, Composite, Sync-On-Green, DVI-D	

4 Most common video inputs listed. See below for a comprehensive list of supported video standards. Speak with a Sales Engineer for more information.

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

6 Supports advanced features such as Live Video, Picture-In-Picture (multiple user-selectable sizes), and Picture-By-Picture.

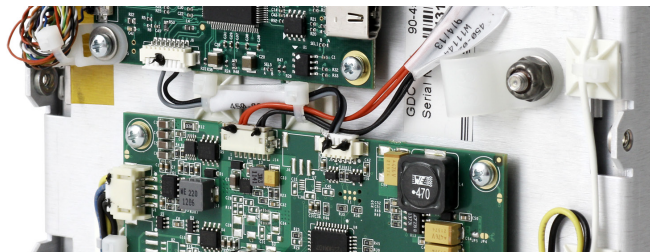
7 Video controller 115 is obsolete and shown for reference only.

VIDEO STANDARDS SUPPORTED All Models

Analog Computer Video	Digital Computer Video	Composite (Live) Video	HD Video	Others
VGA, SVGA, ARGB, RGB, Separate Sync, Composite Sync, Sync-On-Green, DVI-A, STANAG 3350 A / B / C	DVI-D, DVI-I, SD-SDI, HD-SDI	NTSC, PAL, SECAM, RS-170, S-Video, CCTV	HD-SDI, HDMI	CGI, CCIR, EGA, RS-343A, EIA-343A, Custom Sync

CALIBRATION All Models

ddd	Interface	Functions	Advanced
115 [7]	On-screen Displays Navigated by 8-button Membrane Pad	Volume, Brightness, Contrast, Saturation, Hue, Sharpness, Input Signal, Aspect Size (Scaling), Image Position (Horizontal & Vertical), Utilities	Auto Source Seek, Auto Picture Setup, Auto Color Gain, Auto Power Off, Picture-In-Picture, Color Temperature, Hot Keys, OSD (Position, Timeout, Language [English, Chinese], Transparency), Manual Clock & Phase, Video Standard, Image Orientation, Gamma
117	On-screen Displays Navigated by 8-button Membrane Pad	Brightness, Contrast, Saturation, Backlight Brightness, Input Signal, Aspect Size (Scaling), Image Position (Horizontal & Vertical), Utilities	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
121	On-screen Displays Navigated by 8-button Membrane Pad	Brightness, Contrast, Saturation, Hue, Sharpness, Backlight Brightness, Input Signal, Aspect Size (Scaling), Image Position (Horizontal & Vertical), Utilities	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)



MTBF

	Display	LED Backlight [8]	LED Controller	Power Supply (Optional)
SMK-06V-105	> 50,000 Hours (Minimum)	> 50,000 Hours (Typical)	182,000 Hours (Minimum)	Depends on Supply Selected
SMK-06V-9005	> 50,000 Hours (Minimum)	> 20,000 Hours (Typical) [9]	182,000 Hours (Minimum)	Depends on Supply Selected
SMK-06X-9004	> 50,000 Hours (Minimum)	> 20,000 Hours (Typical) [9]	182,000 Hours (Minimum)	Depends on Supply Selected
SMK-08S-9007	> 50,000 Hours (Minimum)	> 50,000 Hours (Typical)	182,000 Hours (Minimum)	Depends on Supply Selected
SCM-15X-989	50,000 Hours (Minimum)	70,000 Hours (Minimum)	182,000 Hours (Minimum)	Depends on Supply Selected
SNCM-17W-956[3]	50,000 Hours (Minimum)	50,000 Hours (Minimum)	182,000 Hours (Minimum)	Depends on Supply Selected
SNCM-19W-993[3]	50,000 Hours (Minimum)	50,000 Hours (Minimum)	182,000 Hours (Minimum)	Depends on Supply Selected
SNCM-22D-987[3]	50,000 Hours (Minimum)	50,000 Hours (Minimum)	182,000 Hours (Minimum)	Depends on Supply Selected
SCM-24D-9014	50,000 Hours (Minimum)	50,000 Hours (Minimum)	182,000 Hours (Minimum)	Depends on Supply Selected

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

9 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
SMK-06V-105	-30° C to 85° C	-30° C to 85° C	5% to 95% RH Non-condensing	5% to 95% RH Non-condensing	14,000 Feet	40,000 Feet
SMK-06V-9005	-30° C to 80° C	-30° C to 80° C	5% to 95% RH Non-condensing	5% to 95% RH Non-condensing	10,000 Feet	30,000 Feet
SMK-06X-9004	-30° C to 80° C	-20° C to 80° C	5% to 95% RH Non-condensing	5% to 95% RH Non-condensing	10,000 Feet	30,000 Feet
SMK-08S-9007	-30° C to 80° C	-30° C to 80° C	10% to 90% RH Non-condensing	10% to 90% RH Non-condensing	10,000 Feet	30,000 Feet
SCM-15X-989	-20° C to 70° C	-30° C to 80° C	8% to 90% RH Non-condensing	8% to 90% RH Non-condensing	10,000 Feet	30,000 Feet
SNCM-17W-956[3]	-30° C to 85° C	-30° C to 85° C	8% to 90% RH Non-condensing	8% to 90% RH Non-condensing	10,000 Feet	30,000 Feet
SNCM-19W-993[3]	-30° C to 85° C	-30° C to 85° C	8% to 90% RH Non-condensing	8% to 90% RH Non-condensing	10,000 Feet	30,000 Feet
SNCM-22D-987[3]	0° C to 60° C	-20° C to 60° C	10% to 90% RH Non-condensing	10% to 90% RH Non-condensing	10,000 Feet	30,000 Feet
SCM-24D-9014	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	30,000 Feet

MECHANICAL

	Dimensions (H x W x D)	Construction	Finish	Weight, Operating [10]	Weight, Shipping [10]
SMK-06V-105	7.50" x 9.25" x 2.43"	5052-H32 Aluminum Mounting Panel	Clear Iridite	3 Pounds	8 Pounds
SMK-06V-9005	7.50" x 9.25" x 2.43"	5052-H32 Aluminum Mounting Panel	Clear Iridite	3 Pounds	8 Pounds
SMK-06X-9004	7.50" x 9.25" x 2.43"	5052-H32 Aluminum Mounting Panel	Clear Iridite	3 Pounds	8 Pounds
SMK-08S-9007	7.50" x 10.50" x 2.48"	5052-H32 Aluminum Mounting Panel	Clear Iridite	4 Pounds	8 Pounds
SCM-15X-989	11.22" x 14.22" x 1.99"	5052-H32 Aluminum Mounting Panel	Clear Iridite	8 Pounds	14 Pounds
SNCM-17W-956[3]	12.18" x 16.23" x 2.22"	5052-H32 Aluminum Mounting Panel	Clear Iridite	8 Pounds	14 Pounds
SNCM-19W-993[3]	13.12" x 16.04" x 2.94"	5052-H32 Aluminum Mounting Panel	Clear Iridite	13 Pounds	19 Pounds
SNCM-22D-987[3]	12.75" x 20.75" x 2.50"	5052-H32 Aluminum Mounting Panel	Clear Iridite	17 Pounds	24 Pounds
SCM-24D-9014	15.3" x 21.7" x 2.5"	5052-H32 Aluminum Mounting Panel	Clear Iridite	19 Pounds	26 Pounds

10 Add 2 pounds to the weight when a Separate Power Supply is included.

I/O CONNECTIONS

	Power (DC)	Analog Video	On/Standby (DC)	S-Video	Composite Video	Touch Screen (Optional)
SMK-06V-105	2-pin, 0.156" sp., Molex	High Density 15-pin Socket	Button on OSD PCB	4-pin Mini DIN	RCA Jack	DE-9, Socket
SMK-06V-9005	2-pin, 0.156" sp., Molex	High Density 15-pin Socket	Button on OSD PCB	4-pin Mini DIN	RCA Jack	DE-9, Socket
SMK-06X-9004	2-pin, 0.156" sp., Molex	High Density 15-pin Socket	Button on OSD PCB	4-pin Mini DIN	RCA Jack	DE-9, Socket
SMK-08S-9007	2-pin, 0.156" sp., Molex	High Density 15-pin Socket	Button on OSD PCB	4-pin Mini DIN	RCA Jack	DE-9, Socket
SCM-15X-989	2W2 D-sub.	High Density 15-pin Socket	LED on Membrane Pad	4-pin Mini DIN	RCA Jack	DE-9, Socket
SNCM-17W-956[3]	2W2 D-sub.	High Density 15-pin Socket	LED on Membrane Pad	4-pin Mini DIN	RCA Jack	DE-9, Socket
SNCM-19W-993[3]	2W2 D-sub.	High Density 15-pin Socket	LED on Membrane Pad	4-pin Mini DIN	RCA Jack	DE-9, Socket
SNCM-22D-987[3]	2W2 D-sub.	High Density 15-pin Socket	LED on Membrane Pad	4-pin Mini DIN	RCA Jack	DE-9, Socket
SCM-24D-9014	2W2 D-sub.	High Density 15-pin Socket	LED on Membrane Pad	4-pin Mini DIN	RCA Jack	DE-9, Socket

OPTIONS All Models (Ordered separately – Please inquire with a Sales Engineer for additional options and accessories)

POWER SUPPLY [11]

<i>hijj</i>	Input Voltage Range	Output				Frequency Range	Line Entry Module/Filter	Power Factor
		6.5"/8.4"/10.4"	15.0"/17.0"/19.0"	20.1"/21.5"	24.0"			
SA30 (Separate)	90–264 VAC	–	66 W /+12 VDC	–	–	47–63 Hz	–	–
SA49 (Separate)	100–264 VAC	30 W /+12 VDC	–	–	–	50–60 Hz	–	–
SP07 (Separate)	85–264 VAC	–	–	–	150W /+12 VDC	47–63 Hz	Yes	0.95
SP31 (Separate)	90–264 VAC	–	–	100 W /+12 VDC	–	47–63 Hz	–	0.95
0092 (None)	+12 VDC	Filtering and regulation provided by customer						

11 Includes 6'7" AC Power Cable.

DISPLAY OVERLAY (Other overlays available – Please inquire with a Sales Engineer)

<i>gg</i>	Description	<i>gg</i>	Description
00	None	35	Capacitive Touch Screen, Ideal Etch
02	Clear Float Glass, Antiglare Etch Two Sides	51	Resistive Touch Screen
04	Clear Float Glass, Antireflective Coating Two Sides	65	Resistive Touch Screen, 5-Wire, with Laminated ITO Glass
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		

OTHER

NVIS Compatibility	Night Vision Displays Compliant to 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, NTSC/PAL/SECAM/RS-170/S-Video/DVI-D/HD-SDI/ SD-SDI/HDMI/HD Component Support, Picture-In-Picture, Picture-By-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 [12]

Model Style	Size & Resolution (<i>aab</i>)	Display (<i>cccc</i>)	Video Controller (<i>ddd</i>)	Keyboard/Pointer (<i>ee</i>)	Industrial Enclosure (<i>ff</i>)	Display Overlay (<i>gg</i>)	Power Supply (<i>hijj</i>)
SMK-	06V-	105-	###-	00-	00-	##-	####
SMK-	06V-	9005-	###-	00-	00-	##-	####
SMK-	06X-	9004-	###-	00-	00-	##-	####
SMK-	08S-	9007-	###-	00-	00-	##-	####
SCM-	15X-	989-	###-	00-	00-	##-	####
SNCM-	17W-	956-	###-	00-	00-	##-	####
SNCM-	19W-	993-	###-	00-	00-	##-	####
SNCM-	22D-	987-	###-	00-	00-	##-	####
SCM-	24D-	9014-	###-	00-	00-	##-	####

12 The hashtags (#) indicate customer-defined values.

ORDERING

Model Number [13]	Description
SMK-06V-105- ddd -00-00- gg-hijj	Impact Solar 6.5, Ruggedized Sunlight Readable 6.5" VGA Open Frame Monitor Kit
SMK-06V-9005- ddd -00-00- gg-hijj	Impact Solar 6.5, Ruggedized Sunlight Readable 6.5" VGA Open Frame Monitor Kit
SMK-06X-9004- ddd -00-00- gg-hijj	Impact Solar 6.5, Ruggedized Sunlight Readable 6.5" XGA Open Frame Monitor Kit
SMK-08S-9007- ddd -00-00- gg-hijj	Impact Solar 8.4, Ruggedized Sunlight Readable 8.4" SVGA Open Frame Monitor Kit
SCM-15X-989- ddd -00-02- gg-hijj	Impact Solar 15.0, Ruggedized Sunlight Readable 15.0" XGA Open Frame Monitor Kit
SNCM-17W-956- ddd -00-02- gg-hijj	Impact Solar/NVIS 17.0, Ruggedized Sunlight Readable Night Vision Goggle-Compatible 17.0" SXGA Open Frame Monitor Kit [3]
SNCM-19W-993- ddd -00-02- gg-hijj	Impact Solar/NVIS 19.0, Ruggedized Sunlight Readable Night Vision Goggle-Compatible 19.0" SXGA Open Frame Monitor Kit [3]
SNCM-22D-987- ddd -00-02- gg-hijj	Impact Solar/NVIS 21.5, Ruggedized Sunlight Readable Night Vision Goggle-Compatible 21.5" SXGA Open Frame Monitor Kit [3]
SCM-24D-9014- ddd -00-02- gg-hijj	Impact Solar 24.0, Ruggedized Sunlight Readable 24.0" WUXGA Open Frame Monitor Kit

13 Bold italicized letters refer to standard customer-defined configurations (see Model Number Configurator above).