

Interface Technology Group, Inc.

Model LCD-20.1-SDI-RM

20.1” High Definition Monitor



Operation and Maintenance Manual

Manual Rev-

Interface Technology Group, Inc.
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Rockledge, FL 32955
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Specifications:

Power Input:..... External Power Supply. 90 – 265 VAC 47-470 Hz.
.....IEC Input connector 50W Nominal

Dimensions:..... 19” Wide X 14.0” High (8 RU) X 3.0” Deep

Screen Specifications:..... UXGA 1600 X 1200 Pixels, 500:1 Contrast Ratio, 250 Cd/m²

Weight:.....10.6 Pounds

Operating Environment:..... 32° F to 100° F, 0 – 95% RH Non condensing

Storage Environment:.....0° F to 120° F, 0 – 99% RH Non condensing

Signal Inputs:..... Composite Video – NTSC, PAL, SECAM

..... Component Video- RGB, HD or SD, S-Video

..... SDI- HD-SDI or SD-SDI with regenerated outputs

..... VGA

..... DVI

QUICK START INSTRUCTIONS

In order to get started quickly without reading the entire manual, a quick start lesson is provided here.

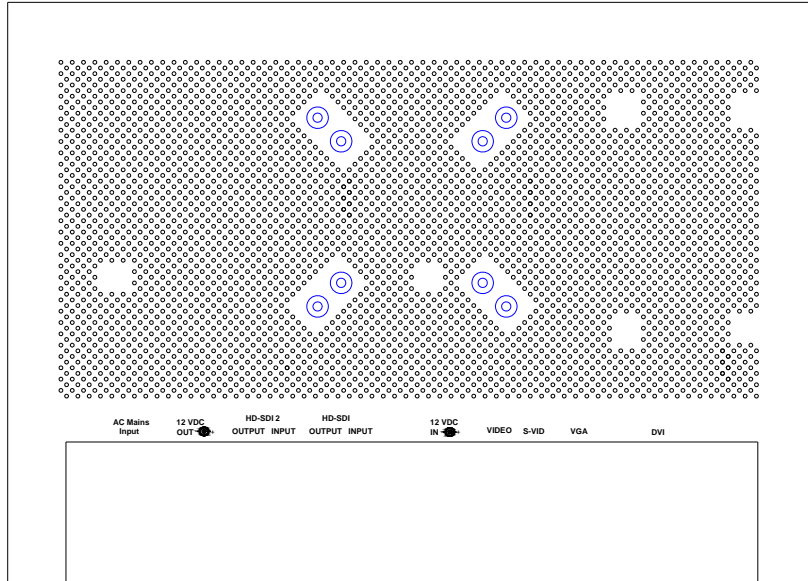
Press the on/off power pushbutton to turn on the monitor. The LED will glow red unless a valid input signal input is detected. Once a suitable signal is detected, the LED will glow green. Pressing the Menu button brings up the on-screen menu system. Using the square rocker switch, you may navigate the on screen menu. The 4 pushbuttons labeled P1, P2, P3 and P4 are factory programmed “hot keys” that allow one button selection of anything that could be accomplished through the on-screen menu system. Typically, they are programmed for different input selections or aspect ration selections. To turn off the monitor, press the on-off pushbutton for 3 seconds and release.

Overview:

The model LCD-20.1-SDI-RM is a 20.1” high definition monitor display system designed for rack mounting in a 8 RU space. A VESA mounting system is included on the back cover and may be used to mount to any VESA mount system such as a swing arm or other specialty mounting system. The monitor has a built in universal input power supply or may be powered from an external 12 volt source. The monitor has a 1600 X 1200 pixel screen. The monitor may be fitted with a single channel SDI input or a dual SDI input. Each SDI input regenerates the input signal and outputs the signal to allow for a new cable run to another display device.

Four factory programmed buttons allow for one button selection of inputs, aspect ratios, color temperatures, and virtually any combination of monitor control that would normally be accessed through the OSD (on-screen display) system.

The monitor is capable of displaying a picture in a picture (PIP) using two separate input signals. It is not possible to display two SDI signals at the same time due to a common bus between the two signals. Any two other signals may be viewed as a PIP. You can display one SDI with another non-SDI signal.



Operation:

Connect a suitable AC mains power source to the IEC connector on the rear of the monitor. Alternatively, connect a 12 VDC source to the 12 VDC connector.

Connect the desired signal to appropriate connector on the rear panel of the monitor.

Press the on/off power pushbutton to turn on the monitor. The LED will glow red unless a valid input signal input is detected. Once a suitable signal is detected, the LED will glow green. Pressing the Menu button brings up the on-screen menu system. Using the square rocker switch, you may navigate the on screen menu.

The monitor is set from the factory to use the “auto” input mode. In this mode, the monitor will search all inputs looking for a valid input signal. When the first good signal is found, the monitor will display that signal. If no input signals are detected, the monitor will shut down the backlight and turn off the LCD display. The monitor will continue to search all inputs and will turn on the LCD screen when a signal is found.

NOTE: In many circumstances it will be desirable to turn off the “auto” input function and allow the 4 hot keys (P1-P4) to control input selection. If the “auto” function is left on, the monitor will attempt to scan all inputs if the signal goes away for even a short time such as when a video input switch is made. Access the “auto” function control by navigating to OSD ► UTILITIES ► AUTO SOURCE SEEK.

The 4 pushbuttons labeled P1, P2, P3 and P4 are factory programmed “hot keys” that allow one button selection of anything that could be accomplished through the on-screen menu system. Typically, they are programmed for different input selections or aspect ration selections. To turn off the monitor, press the on-off pushbutton for 3 seconds and release.
















For example, some monitors have been delivered configured as follows:










- P1 – HD-SDI 1
- P2 – HD-SDI 2
- P3 – Composite Video
- P4 – Aspect Ratio, 16:9 or 4:3

Refer to the documentation at the end of this manual for specific pin-out information for the input signal connectors.

On Screen Display – Detailed description of operation.

OSD functions

	<p>Picture :</p> <p>Volume  Increase/decrease volume level, total: 100 steps</p> <p>Brightness  Increase/decrease panel brightness level, total: 100 steps</p> <p>Contrast  Increase/decrease panel contrast level, total: 100 steps</p> <p>Saturation  Increase/decrease saturation, total: 100 steps</p> <p>Hue **  Increase/decrease Hue level, total: 100 steps</p> <p>Sharpness*  Increase/decrease sharpness, total: 30 steps</p> <p>Position##</p> <p> Move the image position upward</p> <p> Move the image position downward</p> <p> Move the image position to the left</p> <p> Move the image position to the right</p> <p>Aspect Size ▶</p> <p>Aspect Ratio : Fill Screen / Fill to Aspect Ratio / 1 : 1</p> <ul style="list-style-type: none"> - Fill Screen : Enable full screen expansion for lower resolution Image - Fill to Aspect Ratio: Enable fill screen expansion for lower resolution image according to aspect ratio - 1 : 1 : Display the exact image resolution on the screen without image expansion. <p style="text-align: right;">* : DISPLAY IN VIDEO MODE ONLY ** : FUNCTION IN VIDEO NTSC / HD COMPONENT MODE ONLY # : DISPLAY IN ARGB / DVI MODE ONLY ## : FUNCTION IN ARGB MODE ONLY</p>
	<p>Input : Select the input video signal</p> <p>HD\SDI VGA DVI HD Component Composite S-Video SD Component PIP Source ▶</p> <p style="text-align: right;">OFF / HDSDI / VGA / DVI / HD Component / Composite / S-Video / SD Component</p>
	<p>Utilities :</p> <p>Setup ▶</p> <p>Auto Picture Setup# : Auto adjust the image position, phase and size</p> <p>Auto Color Gain## : Auto Color Calibration</p> <p>Manual Clock## :  Adjust the image horizontal size</p> <p>Manual Phase# :  Fine tune the data sampling position (adjust image quality)</p> <p>Auto Source Seek : OFF / ON ON – Auto source select always enable OFF – Disable auto source select function</p> <p>Auto Power : OFF / ON ON – Enable soft power off function if absence of input signals OFF – Disable soft power function</p> <p>Video Standard (SD)* : Auto / NTSC / NTSC 4.43 / PAL / PAL M / SECAM</p> <p>Image Orientation : Normal / Horizontal flip / Vertical flip / Rotate</p> <p>Gamma : 1.0 / 1.6 / 2.2</p> <p>OSD ▶</p> <p>OSD position :</p>

	<p>H POS  : Move the OSD menu image horizontally</p> <p>V POS  : Move the OSD menu image vertically</p> <p>OSD Timeout (sec) : 5 – 60 : Adjust the OSD menu timeout period in a step of 5 seconds (max 60 seconds)</p> <p>Language : English / Chinese : Select OSD menu language display</p> <p>Transparency : ON / OFF : Set OSD transparency</p> <p>Color Temperature ▶</p> <p>5000K</p> <p>6500K</p> <p>8000K</p> <p>9300K</p> <p>User setting :</p> <p>USER Red : </p> <p>USER Green : </p> <p>USER Blue : </p> <p>Hot Key ▶</p> <p>Hot key 1 : Volume / Brightness / Contrast / Input / Aspect / PIP Size / PIP Swap / Image Orientation</p> <p>Hot key 2 : Volume / Brightness / Contrast / Input / Aspect / PIP Size / PIP Swap / Image Orientation</p> <p>PIP ▶</p> <p>PIP Size : OFF / Small / Medium / Large / PBP</p> <p>PIP Position :</p> <p> Move the PIP position upward</p> <p> Move the PIP position downward</p> <p> Move the PIP position to the left</p> <p> Move the PIP position to the right</p> <p>Reset to Factory Defaults ▶</p>
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* : DISPLAY IN VIDEO MODE ONLY
: DISPLAY IN ARGB MODE ONLY
: DISPLAY IN ARGB / HD COMPONENT MODE ONLY

Firmware V0.15.00

Routine Maintenance:

Remove dust from the cabinet when it accumulates. The front panel may cleaned with a soft cotton cloth. Use only a small amount of mild soap and water solution to dampen the cloth if necessary.

The Rack Ears may be removed and the monitor mounted by a standard VESA mount hole pattern on the back side.

Input connectors and pin-out information.

P1 - Analog VGA in - 15 way connector

PIN	SYMBOL	DESCRIPTION
1	PCR	Red, analog
2	PCG	Green, analog
3	PCB	Blue analog
4	ID2	Reserved for monitor ID bit 2 (grounded)
5	DGND	Digital ground
6	AGND	Analog ground red
7	AGND	Analog ground green
8	AGND	Analog ground blue
9	DDC_5V	+5V power supply for DDC (optional)
10	DGND	Digital ground
11	ID0	Reserved for monitor ID bit 0 (grounded)
12	DDC_SDA	DDC serial data
13	HS_IN	Horizontal sync or composite sync, input
14	VS_IN	Vertical sync, input
15	DDC_SCL	DDC serial clock

P2 – DVI-I in

PIN	SYMBOL	DESCRIPTION
1	/RX2	TMDS Data 2-
2	RX2	TMDS Data 2+
3	GND	Digital Ground
4	NC	No connection
5	NC	No connection
6	DDC_CLK	DDC Clock
7	DDC_DAT	DDC Data
8	VS_IN	Analog vertical Sync
9	/RX1	TMDS Data 1-
10	RX1	TMDS Data 1+
11	GND	Digital Ground
12	NC	No connection
13	NC	No connection
14	DDC_5V	+5V power supply for DDC (optional)
15	GND	Ground (+5, Analog H/V Sync)
16	NC	No connection
17	/RX0	TMDS Data 0-
18	RX0	TMDS Data 0+
19	GND	Digital Ground
20	NC	No connection
21	NC	No connection
22	GND	Digital Ground
23	RXC	TMDS Clock+
24	/RXC	TMDS Clock-
C1	R	Red or Pr
C2	G	Green or Y
C3	B	Blue or Pb
C4	HS_IN	Analog horizontal sync
C5	GND	Ground
C6	NC	No connection

SPECIFICATIONS

No. of colors	Up to 3 x 8 bit providing 16.7 million colours.
Panel power	DC 3.3V, 5V, 12V, 12V~18V
Panel signal	TTL / LVDS
Vertical refresh rate	60Hz at 1920x1200, 60Hz at 1920x1080, 60Hz at UXGA and up to 75Hz other lower resolution
Display clock maximum	165MHz
ADC clock maximum	195 MHz
DVI differential input clock maximum	165MHz
Graphics formats	Standard VESA VGA, SVGA, XGA, SXGA, WXGA, UXGA, WUXGA Other special formats through specified BIOS and factory adjustment.
Graphics auto mode detect	VGA, SVGA, XGA, SXGA, WXGA, UXGA & WUXGA interlaced and non-interlaced
Standard input at source (analog RGB)	VGA analog (15 pin) standard with automatic detection of: Digital Separate Sync; Composite Sync Sync On Green.
Video formats	PAL, NTSC & SECAM
Video inputs	ARGB DVI-D Composite video S-Video SD Component video (YCbCr) HD Component (YPbPr) HD-SDI
Functions display	On screen display (OSD) of functions
OSD menu functions	Image controls: Panel brightness/contrast, Saturation, Hue, Color temperature, Sharpness, Video Scaling, PIP, OSD position, OSD timeout, Image orientation, Auto Source Seek, etc.
OSD menu controls available	Power On/Off Backlight brightness OSD Menu OSD Select up OSD Select down Setting + Setting -
Control interface	Buttons, RS-232, Remote control
Settings memory	Settings are stored in non volatile memory
PC Connectivity	VGA / SVGA / XGA / SXGA / UXGA / WUXGA analog or digital
Controller dimensions	179mm x 120.4mm (7." x 4.74")
Power consumption	10w approx. (not including panel power consumption)
Power load maximum	The controller has an overall 3Amp current limit.
Input voltage	12VDC +/- 5%
Power protection	Fuse fitted (Resettable)
DC Power handling	Reverse power polarity protection is equipped on the board
Storage temperature limits	-40°C to +70°C
Operating temperature limits	0°C to +60°C

APPENDIX I – SUPPORTED GRAPHICS MODES TABLE

Mode	Resolution	Clk [MHz]	Horizontal freq [KHz]	Vertical freq [Hz]	Sync Mode
E1_70	640x350 70Hz	25.175	31.469	70.087	Digital Separate Sync
E2_70	640x400 70Hz	25.175	31.469	70.087	Digital Separate Sync
T_70	720x400 70Hz	28.322	31.469	70.087	Digital Separate Sync
T_70	720x400 70Hz	28.322	31.469	70.087	Sync On Green
V_60	640x480 60Hz	25.175	31.469	59.940	Digital Separate Sync
V_60	640x480 60Hz	25.175	31.469	59.940	Sync On Green
V_60	640x480 60Hz	25.175	31.469	59.940	Composite Sync
V_72	640x480 72Hz	31.500	37.861	72.809	Digital Separate Sync
V_72	640x480 72Hz	31.500	37.861	72.809	Sync On Green
V_72	640x480 72Hz	31.500	37.861	72.809	Composite Sync
V_75	640x480 75Hz	31.500	37.500	75.000	Digital Separate Sync
V_75	640x480 75Hz	31.500	37.500	75.000	Sync On Green
V_75	640x480 75Hz	31.500	37.500	75.000	Composite Sync
SV_56	800x600 56Hz	36.000	35.156	56.250	Digital Separate Sync
SV_56	800x600 56Hz	36.000	35.156	56.250	Sync On Green
SV_56	800x600 56Hz	36.000	35.156	56.250	Composite Sync
SV_60	800x600 60Hz	40.000	37.879	60.317	Digital Separate Sync
SV_60	800x600 60Hz	40.000	37.879	60.317	Sync On Green
SV_60	800x600 60Hz	40.000	37.879	60.317	Composite Sync
SV_72	800x600 72Hz	50.000	48.077	72.188	Digital Separate Sync
SV_72	800x600 72Hz	50.000	48.077	72.188	Sync On Green
SV_72	800x600 72Hz	50.000	48.077	72.188	Composite Sync
SV_75	800x600 75Hz	49.500	46.875	75.000	Digital Separate Sync
SV_75	800x600 75Hz	49.500	46.875	75.000	Sync On Green
SV_75	800x600 75Hz	49.500	46.875	75.000	Composite Sync
X_60	1024x768 60Hz	65.000	48.363	60.004	Digital Separate Sync

X_60	1024x768 60Hz	65.000	48.363	60.004	Sync On Green
X_60	1024x768 60Hz	65.000	48.363	60.004	Composite Sync
X_70	1024x768 70Hz	75.000	56.476	70.069	Digital Separate Sync
X_70	1024x768 70Hz	75.000	56.476	70.069	Sync On Green
X_70	1024x768 70Hz	75.000	56.476	70.069	Composite Sync
X_75	1024x768 75Hz	78.750	60.023	75.029	Digital Separate Sync
X_75	1024x768 75Hz	78.750	60.023	75.029	Sync On Green
X_75	1024x768 75Hz	78.750	60.023	75.029	Composite Sync
SX_60	1280x1024 60Hz	108	63.81	60.020	Digital Separate Sync
SX_60	1280x1024 60Hz	108	63.81	60.020	Sync On Green
SX_60	1280x1024 60Hz	108	63.81	60.020	Composite Sync
SX_75	1280x1024 75Hz	135	79.976	75	Digital Separate Sync
SX_75	1280x1024 75Hz	135	79.976	75	Sync On Green
SX_75	1280x1024 75Hz	135	79.976	75	Composite Sync
UX_60	1600x1200 60Hz	162	75.000	60	Digital Separate Sync
UX_60	1600x1200 60Hz	162	75.000	60	Sync On Green
UX_60	1600x1200 60Hz	162	75.000	60	Composite Sync
WUX_60	1920x1080 60Hz	172.8	67.5	60	Digital Separate Sync
WUX_60	1920x1080 60Hz	172.8	67.5	60	Sync On Green
WUX_60	1920x1080 60Hz	172.8	67.5	60	Composite Sync
WUX_60	1920x1200 60Hz	193.2	74.5	60	Digital Separate Sync
WUX_60	1920x1200 60Hz	193.2	74.5	60	Sync On Green
WUX_60	1920x1200 60Hz	193.2	74.5	60	Composite Sync

Remark :

The controller has been designed to take a very wide range of input signals however to optimize the PC's graphics performance we recommend choosing 60Hz vertical refresh rate. To support on higher refresh rate over 60Hz, the LCD panel may not support.