smiths detection

AUTO - SCANNING WITH DIGITAL CONTROL
LCD COLOR MONITOR
FS-L1903C

User manual (Rev.01)

SMITHS HEIMANN
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FCC INFORMATION

This LCD monitor unit has been tested and found to comply with the limits of a Class B digital Device, pursuant to Part 15 of the FCC rules.
These limits are designed to provide reasonable protection against interference. This monitor can radiate radio frequency energy and, if not installed and used in accordance with the instructions, it may interfere with other radio communications equipment. There is no guarantee that interference will not occur in a particular installation.
If this equipment is found to cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by carrying out one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the distance between the LCD monitor and the subject of interference.
3. Plug the monitor into an outlet on a different electrical circuit than that to which the subject of Interference is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

NOTICES TO USER

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any Interference received, including interference that may cause undesired operation.

FCC WARNING
This LCD monitor generates or uses radio frequency energy. Changes or modifications to this LCD monitor may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose authority to operate this equipment if an unauthorized change or modification is made. Environmental information

The user's manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

(a) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception,

Which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

ENVIRONMENTAL INFORMATION

1. Operating Conditions
   - Temperature: 0℃~ 40℃
   - Humidity: 5%~85% non-condensing
2. Transportation Conditions
   - Temperature: -20℃~ 60℃
   - Humidity: 5%~95% non-condensing
3. Storage Conditions
   - Temperature: -20℃~ 60℃
   - Humidity: 10%~85% non-condensing

APPROVALS

Safety

1. CE-LVD
   EN 60950-1:2006+A11:2009+A1:2010+A12:2011

EMC

1. CE-EMC
   EN 55022 Class B,EN55024 & EN61000-3-2/-3-3
2. FCC Part 15 Class B

DISPOSAL INFORMATION

Dispose of it as required by local ordinances or regulations.

This equipment has required the extraction and use of natural resources for its production.

It may contain hazardous substances for health and environment.

In order to avoid the dissemination of those substances in the environment and to diminish the pressure on natural resources, we encourage you to use the appropriate take-back systems.

Those systems will reuse or recycle most of the materials of your end-of-life equipment in a sound way.

The crossed-out wheeled bin symbol invites you to use those systems.

If you need more information on the collection, reuse and recycling systems, please contact your local or regional waste administrator.

You can also contact us for more information on the environmental performances of our products.

Safety Instructions

On safety

1. Before connecting the AC power cord to the monitor, make sure the voltage designation of the AC voltage corresponds to the local electrical supply.
2. Never insert anything metallic into the cabinet openings of the Liquid Crystal Display (LCD) monitor. Doing so may create the danger of electric shock.
3. To reduce the risk of electric shock, do not remove cover.
   No user-serviceable parts inside. Only a qualified technician should open the case of the LCD monitor.
4. Never use your LCD monitor if the power cord has been damaged.
   Do not allow anything to rest on the power cord, and keep the cord away from areas where people can trip over it.
5. Be sure to hold the plug, not the cord, when disconnecting the LCD monitor from an electric socket.
6. Unplug your LCD monitor when it is going to be left unused for an extended period of time.
7. Unplug your LCD monitor from the AC outlet before any service.
8. If your LCD monitor does not operate normally - in particular, if there are any unusual sounds or smells coming from it unplug it immediately and contact an authorized dealer or service center.

On installation

1. Openings in the LCD monitor cabinet are provided for ventilation.
   To prevent overheating, these openings should not be blocked or covered. If you put the LCD monitor in a bookcase or some other enclosed space, be sure to provide adequate ventilation.
2. Put your LCD monitor in a location with low humidity and minimal dust.
3. Do not expose the LCD monitor to rain or use it near water (in kitchens, near swimming pools, etc.).

   If the LCD monitor accidentally gets wet, unplug it and contact an authorized dealer immediately. You can clean the LCD monitor with a damp cloth if necessary, but be sure to unplug the LCD monitor first.
4. Locate your LCD monitor near an easily accessible AC outlet.
5. High temperature can cause problems. Don't use your LCD monitor in direct sunlight and keep it away from heaters, stoves, fireplaces, and sources of heat.

Operator Safety Instructions

For your safety, please read these safety instructions completely before you connect the equipment to the power source.
The information in this summary is intended for operators.
Carefully observe all warnings, precautions and instructions both on the Apparatus and in these operating instructions. Retain this manual for future reference.

Water and Moisture

Do not operate the apparatus under or near water - for example near a bathtub, Kitchen sink, or laundry tub, in a wet basement, near a swimming pool or in other areas with high humidity.
Never install jacks for communication cables in wet locations unless the jack is specifically designed for wet locations. Do not touch the product with wet hands.

Cleaning

Unplug the apparatus from communication lines, mains power-outlet or any power source before cleaning or polishing. Do not use liquid cleaners or aerosol cleaners.
Use a lint-free cloth lightly moistened with water for cleaning the exterior of the apparatus.

Ventilation

Do not block any of the ventilation openings of the apparatus. Never cover the slots and openings with a cloth or other material. Never install the apparatus near heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
Do not place the product in direct sunlight or close to a surface directly heated by the sun.

Lightning

Never use this apparatus, or connect/disconnect communication cables or power cables during lightning storms.

Dust

Do not operate the apparatus in areas with high concentration of dust

Vibration

If possible, do not operate the apparatus in areas with vibration or place it on an unstable surface. But, little vibration in allowed.

Power Connection and Hazardous Voltage

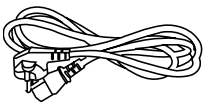
The product may have hazardous voltage inside. Never attempt to open this product, or any peripherals connected to the product, where this action requires a tool.
This product should always be powered from an earthed power outlet.
Never connect attached power supply cord to other products.
In case any, parts of the product has visual damage never attempt to connect mains power, or any other power source, before consulting service personnel. The plug connecting the power cord to the product serves as the main.
Disconnect device for this equipment. The power cord must always be easily accessible.
Route the power cord so as to avoid it being walked on or pinched by items placed upon or against it.
Pay particular attention to the plugs, receptacles and the point where the cord exits from the apparatus.
Do not tug the power cord.

If the provided plug does not fit into your outlet, consult an electrician.
Never install cables, or any peripherals, without first unplugging the device from its power source.

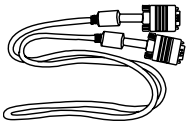
Servicing

Do not attempt to service the apparatus yourself as opening or removing covers may expose you to dangerous voltages or other hazards, and will void the warranty.
Refer all servicing to qualified service personnel.
Unplug the apparatus from its power source and refer servicing to qualified personnel under the following conditions:
If the power cord or plug is damaged or frayed.
If liquid has been spilled into the apparatus.
If objects have fallen into the apparatus.
If the apparatus has been exposed to rain or moisture
If the apparatus has been subjected to excessive shock by being dropped.
If the cabinet has been damaged.
If the apparatus seems to be overheated.
If the apparatus emits smoke or abnormal odor.

Accessories

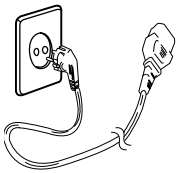


AC Power cord (EU)

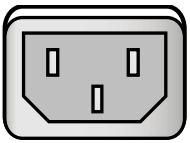


VGA Cable

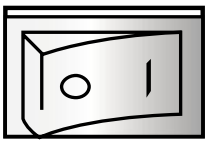
Power Connections



To the AC inlet connector



AC Inlet



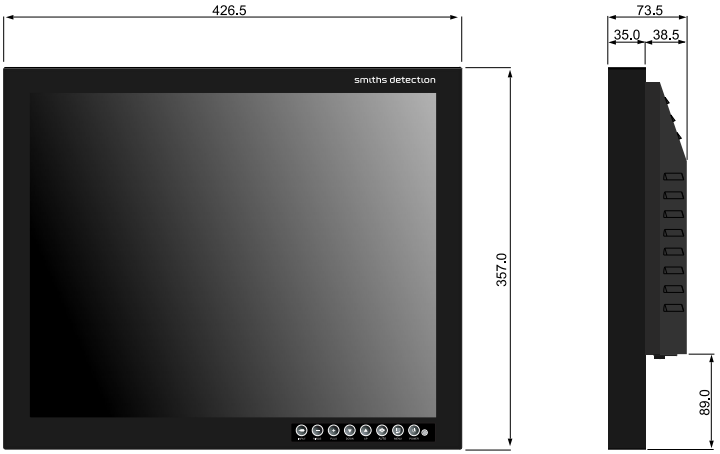
AC ON/OFF Switch

1) Use 220V or 110V
2) Connect monitor to VGA source using VGA connector.
3) Power on the monitor
4) Done.

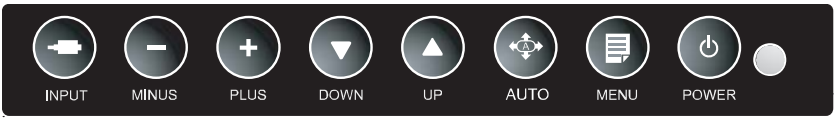
Monitor Connections

- AC IN: AC Inlet.
- ON/OFF: AC on/off switch.
- DVI: DVI Connection for Digital TMDS.
- VGA: 15Pin D-Sub connector for Analog RGB.
- RS-232C: 9Pin D-Sub connector for firmware update.

Mechanical Drawings



OSD Buttons



Power LED

Green: Normal mode

Blink Green: Standby mode

Blink Green: Soft power-off

● On-Screen Display (OSD) Function Button

1. POWER: Turns ON/OFF the monitor.
2. MENU: With OSD deactivated, Activate the OSD menu.
   With OSD activated, Exit from main menu or sub menu.
3. AUTO: Release the button (Auto Adjust): Fit to the most appropriate screen on the D-SUB Analog signal.

   Hold the button (Manual separate timing table): Change the timing Table to another one which is having different timing except V Total And H period.
   If VGA Analog's picture size not matched with full screen size or image is noisy Press the input button during 2~3 seconds then you can see the most Appropriate screen.
4. UP: With OSD deactivated, hot key of the luminance control and increases the luminance. With OSD activated, move the cursor upward.
5. DOWN: With OSD deactivated, hot key of the luminance control and decreases the luminance. With OSD activated, move the cursor downward.
6. PLUS: With OSD deactivated, hot key of the contrast control and increase the contrast. With OSD activated, enter sub menu and increases the adjustment of the selected function.
7. MINUS: With OSD deactivated, hot key of the contrast control and decreases the contrast.
   With OSD activated, decreases the adjustment of the selected function.
8. INPUT: Change the display signal source.

Power Managements

Status	LED Sign	Power Consumption
Normal Operation	Green	Normal Power
Sleep Mode	Green blink	< 1 Watt

NOTE: Sleep mode will be entered by two conditions as below.

Sleep mode is only available when sleep enable function in service menu is enabled.

For default disabled, ask your service or administrator.

1) Entered by “soft-power switch” Turn off.
2) Entered by “Input H/V sync lost”.

“soft-power switch” should be turned on to return to the operation state

Adjusting OSD

On every page of OSD, the actual input source, resolution and frame rate are displayed.

VGA input sources

ADJUST

1. BRIGHTNESS

Increase or decrease the brightness (Range: 0~100)
Use of brightness adjustment limits the dynamic range
Prefer to use of LUMINANCE adjustment.

2. CONTRAST
Increase or decrease the contrast (Range: 0~100)

3. CLOCK
Increase or decrease the sampling frequency (Range: 0~100)

4. PHASE
Increase or decrease the Phase level (Range: 0~100)

5. LUMINANCE
Adjust backlight dimming level (Range: 0~100)

COLOR TEMP

1. MODE

Change the color temperature mode (Range: 0~100) (C1 (Reddish, 6500K), C2 (Bluish, 9300K), USER)

2. RED
Red balance (Only works with USER mode) (Range: 0~100)

3. GREEN
Green balance (Only works with USER mode) (Range: 0~100)

4. BLUE
Blue balance (Only works with USER mode) (Range: 0~100)

IMAGE

1. IMAGE SIZE

Change the image size (Fill aspect, 1:1, Full)

2. H POSITION
Adjust the horizontal position of the displayed source image. (Range: 0~100)

3. V POSITION
Adjust the vertical position of the displayed source image. (Range: 0~100)

4. SHARPNESS
Set the sharpness of image (0 ~ 9)

SETUP

1. AUTO SOURCE SELECT

Disable or enable auto source select.
(ON: Searches through all possible input sources until an active video source is found.
OFF: Video input is manually selected.)

2. OSD COLOR
Adjust the OSD back ground from white opaque to half translucent.

3. OSD POSITION
Change the OSD position (9 positions)

4. DURATION
Adjust time until the OSD Menu will disappear after adjusting the menu.
(5, 10, 20, 30, 60, 90, 120 seconds)

5. RESET SETTINGS
Change to all OSD value to factory outgoing status.

DVI input sources

ADJUST

1. BRIGHTNESS

Increase or decrease the brightness (Range: 0~100)
Use of brightness adjustment limits the dynamic range

Prefer to use of LUMINANCE adjustment.

2. CONTRAST
Increase or decrease the contrast (Range: 0~100)

3. LUMINANCE
Adjust backlight dimming level (Range: 0~100)

COLOR TEMP

1. MODE

Change the color temperature mode (Range: 0~100) (C1 (Reddish, 6500K), C2 (Bluish, 9300K), USER)

2. RED
Red balance (Only works with USER mode) (Range: 0~100)

3. GREEN
Green balance (Only works with USER mode) (Range: 0~100)

4. BLUE
Blue balance (Only works with USER mode) (Range: 0~100)

IMAGE

1. IMAGE SIZE

Change the image size (Fill aspect, 1:1, Full)

2. SHARPNESS
Set the sharpness of image (0 ~ 9)

SETUP

1. AUTO SOURCE SELECT

Disable or enable auto source select.
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Adjust the OSD back ground from white opaque to half translucent.

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Change the OSD position (9 positions)

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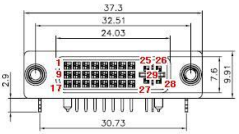
Adjust time until the OSD Menu will disappear after adjusting the menu.
(5, 10, 20, 30, 60, 90, 120 seconds)

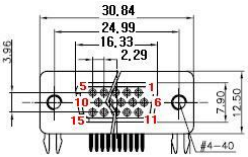
5. RESET SETTINGS
Change to all OSD value to factory outgoing status.

Signal Connector Pin Assignments

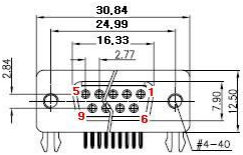
Connector pin assignment					
Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	TMDS Data2-	11	TMDS Data1 Shield	21	No Connect
2	TMDS Data2+	12	No Connect	22	TMDS Clock Shield
3	TMDS Data2 Shield	13	No Connect	23	TMDS Clock+
4	No Connect	14	+5V Power	24	TMDS Clock-
5	No Connect	15	Ground(for +5V)	25	Analog Red
6	DDC Clock	16	Hot Plug Detect	26	Analog Green
7	DDC Data	17	TMDS Data0-	27	Analog Blue
8	Analog V-sync	18	TMDS Data0+	28	Analog H-Sync
9	TMDS Data1-	19	TMDS Data Shield	29	GND(for analog signal)
10	TMDS Data1+	20	No Connect		



Connector pin assignment					
Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	RED	6	GND	11	GND
2	GREEN	7	GND	12	SDA
3	BLUE	8	GND	13	HS
4	GND	9	GND	14	VS
5	GND	10	GND	15	SCL



Connector pin assignment			
Pin	Signal Assignment	Pin	Signal Assignment
1	No Connect	6	No Connect
2	RS-232 RXD	7	No Connect
3	RS-232 TXD	8	No Connect
4	No Connect	9	No Connect
5	Ground		No Connect



Supported Signal Formats

Standard Timing Tables

Resolution	Horizontal			Vertical	
	Period (uSec)	Total (Pixel)	Data Start (Pixel)	Total (line)	Data Start (line)
640 x 480 @ 59.9Hz	31.78	800	144	525	35
640 x 480 @ 75Hz	26.67	840	184	500	19
640 x 480 @ 85Hz	23.11	832	136	509	28
800 x 600 @ 56.3Hz	28.44	1024	200	625	24
800 x 600 @ 60.3Hz	26.40	1056	216	628	27
800 x 600 @ 72.2Hz	20.80	1040	184	666	29
800 x 600 @ 75Hz	21.33	1056	240	625	24
800 x 600 @ 85.1Hz	18.63	1048	216	631	30
1024 x 768 @ 60Hz	20.67	1344	296	806	35
1024 x 768 @ 70.1Hz	17.71	1328	280	806	35
1024 x 768 @ 75Hz	16.66	1312	272	800	31
1024 x 768 @ 85Hz	14.56	1376	304	808	39
1152 x 864 @ 75Hz	14.81	1600	384	900	35
1280 x 960 @ 60Hz	16.66	1800	424	1000	39
1280 x 1024 @ 60Hz	15.78	1760	454	1056	29
1280 x 1024 @ 75Hz	12.50	1688	392	1066	41
1600 x 1200 @ 60Hz	13.33	2160	496	1250	49
1680 x 1050 @ 59.9Hz	15.32	2240	456	1089	36
1680 x 1050 @ 59.9Hz	15.46	1840	80	1080	9
1920 x 1080 @ 30Hz	29.66	2200	237	1125	40
1920 x 1080 @ 30Hz	29.63	2200	237	1125	42
1920 x 1080 @ 50Hz	17.78	2640	192	1125	41
1920 x 1080 @ 60Hz	14.81	2200	192	1125	41
1920 x 1200 @ 60Hz	13.84	2112	152	1205	4
1920 x 1200 @ 60Hz	13.42	2592	542	1242	41
1920 x 1440 @ 60Hz	11.11	2600	552	1500	59
1920 x 1440 @ 75Hz	8.89	2640	576	1500	59

Special Timing Tables

Resolution	Horizontal			Vertical	
	Period (uSec)	Total (Pixel)	Data Start (Pixel)	Total (line)	Data Start (line)
512 x 512 @ 71.1Hz	26.24	656	30	536	4
624 x 658 @ 74.9Hz	19.57	824	188	682	23
760 x 908 @ 80.1Hz	13.15	1002	233	950	41
808 x 802 @ 75Hz	15.98	1034	214	834	31
808 x 802 @ 87.8Hz	13.66	1034	214	834	31
880 x 658 @ 75Hz	19.56	1160	263	682	23
880 x 730 @ 75.1Hz	17.48	1126	233	762	31
880 x 946 @ 75Hz	13.49	1160	268	988	41
912 x 586 @ 75Hz	21.85	1204	274	610	23
944 x 946 @ 85Hz	11.84	1274	282	994	47
968 x 730 @ 75Hz	17.49	1240	257	762	31
1024 x 768 @ 60Hz	20.68	1344	296	806	35
1024 x 768 @ 75Hz	16.67	1312	272	800	31
1024 x 768 @ 85Hz	14.56	1376	304	808	39
1024 x 1090 @ 75Hz	11.78	1348	312	1132	41
1032 x 1090 @ 68Hz	12.99	1360	316	1132	41
1048 x 946 @ 75Hz	13.50	1382	321	988	41
1120 x 874 @ 75Hz	14.72	1434	297	906	31
1144 x 946 @ 75Hz	13.49	1510	352	988	41
1144 x 1090 @ 75Hz	11.78	1510	352	1132	41
1272 x 946 @ 75Hz	13.49	1680	392	988	41
1280 x 720 @ 60Hz	22.28	1664	320	748	25
1280 x 720 @ 60Hz	22.50	1440	112	741	18
1280 x 720 @ 75Hz	17.67	1696	336	755	32
1280 x 720 @ 85Hz	15.51	1712	352	759	36
1280 x 768 @ 60Hz	21.08	1440	112	790	19

Resolution	Horizontal			Vertical	
	Period (uSec)	Total (Pixel)	Data Start (Pixel)	Total (line)	Data Start (line)
1280 x 768 @ 75Hz	16.56	1696	336	805	34
1280 x 768 @ 85Hz	14.55	1712	352	809	38
1280 x 960 @ 60Hz	16.73	1696	336	996	33
1280 x 960 @ 60Hz	16.86	1440	112	988	25
1280 x 960 @ 75Hz	13.27	1728	360	1005	42
1280 x 960 @ 85Hz	11.64	1728	360	1011	48
1280 x 1024 @ 60Hz	15.63	1688	360	1066	41
1280 x 1024 @ 75Hz	12.50	1688	392	1066	41
1280 x 1024 @ 85Hz	10.97	1728	384	1072	47
1360 x 768 @ 60Hz	20.89	1776	344	798	27
1360 x 768 @ 60Hz	21.11	1520	112	790	19
1400 x 1050 @ 75Hz	12.13	1896	392	1099	46
1440 x 900 @ 85Hz	12.56	1600	112	937	34
1440 x 900 @ 85Hz	12.41	1952	408	948	45
1512 x 874 @ 75Hz	14.71	1936	401	906	31
1600 x 900 @ 60Hz	17.84	2112	424	934	31
1600 x 900 @ 60Hz	18.00	1760	112	926	23
1600 x 900 @ 75Hz	14.29	1760	112	933	30
1600 x 900 @ 75Hz	14.15	2144	440	942	39
1600 x 900 @ 85Hz	12.55	1760	112	937	34
1600 x 1200 @ 60Hz	13.33	2160	496	1250	49
1680 x 1050 @ 60Hz	15.30	2240	456	1089	36
1680 x 1050 @ 60Hz	15.44	1840	112	1080	27
1680 x 1050 @ 75Hz	12.26	1840	112	1088	35
1920 x 1080 @ 60Hz	15.00	2080	112	1111	28
1920 x 1200 @ 60Hz	13.50	2080	112	1235	32

Specifications

Model	FS-L1903C	
LCD PANEL	Type	DLM190-A01(Original : LM190E08)
	Size	19” Diagonal
	Resolution	1280 x 1024
	Pixel pitch	0.63(H)mmX0.63(V)mm
	Display colors	16.7M (RGB 8-bit data)
	Contrast Ratio(Typ.)	800:1
	Viewing Angle(Typ.)	R/L 170, U/D 160 degree
	Luminance(Typ.)	300 cd/m^2
Power Consumption	Typical	35 Watt
	Standby Mode	Under 1 Watt
Control Key	Input, Minus, Plus, Down, Up, Auto, Menu, Power	
Power	AC 100-230V(50-60Hz) 1.5A Max	
Approval Marks	Approval Mark	FCC,CE
Dimension	Size	426.5 x 357.0 x 73.5 (mm)