



ARV-17XX AD Board

(Hardware version A1.2X / A1.3X)

INSTRUCTION MANUAL

Model Name

ARV-1700 (RGB, LVDS)

ARV-1720 (DVI-I & RGB, LVDS)

ARV-1750 (Video, DVI-I & RGB, LVDS)

ARV-1706 (Audio, RGB, LVDS)

ARV-1726 (Audio, DVI-I & RGB, LVDS)

ARV-1756 (Audio, Video, DVI-I & RGB, LVDS)

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Revision History					
Version		Date	Page	Section	Description
Product	Document				
A1.3	2.6	2012/05/11	25	6	Revise "weight"
A1.3	2.5	2012/03/19	25	6	Revise "weight"
A1.3	2.4	2012/03/02	5	2	Add Installation guide note
A1.3	2.3	2012/01/31	All	All	Use standard Edition
A1.3	2.2	2012/01/31	10	3.6	Revise "Audio Input Jacks and Connectors"
A1.3	2.1	2011/06/28	26	5	Revise "Operating Temperature & Humidity"
			26	5	Revise "Storage Temperature & Humidity"
A1.3	1.20	2011/02/24	8	3	Update PCB Layout
A1.3	1.19	2010/07/26	1,5,8,13	2, 3	Add Product A1.3 to the manual
A1.2	1.18	2009/09/10	8	3	Update PCB Layout
A1.2	1.17	2009/4/3	1~25	-	Remove all the descriptions of ARV-18xx
			1	3	Add LED backlight driver description
			3	1	Add LED backlight driver as a optional product
			4	4, 5	Add LED backlight driver description
			6	1	Revise PCB Version
			9	3	Add LED backlight driver description
			11	1	Revise pin assignment of OSD connector CN707
			12	1	Add LED backlight driver and jumper description
A1.1	1.16	2008/9/15	20	1	Revise operating / storage temperature & humidity
			21	1	Add a mode table
A1.1	1.15	2007/1/16			First release
<Remarks>					

1 Introduction

1.1 Overview

Thank you for purchasing Spectrah product ARV-17XX series A/D and D/D converter boards. ARV-17XX series is designed as the major panel driving board for the industrial display systems or customized display devices. The ARV-17XX series provides excellent display quality, ease of use, and cost efficient solutions for LCD panel user.

The ARV-17XX series provides complete signal input ports including computer RGB, DVI, and video interfaces including Composite, S-Video, and YPbPr. The ARV-17XX supports a wide range of LCD panels including AUO, CMO, Sharp, CPT, NEC, Toshiba, Samsung, and LG. The onboard controller Genesis GM5321 or GM5221 is a high quality A to D and D to D receiver device capable of converting analog or PanelLink digital signals to the required RGB signals for various LCD panels. This controller board can drive LCD panels from VGA (640 x 480) up to SXGA (1280 x 1024) resolutions at true color, one or two pixel/clock mode. The ARV-17XX series also provides Genesis unique technology to support excellent panel display quality: ACC (Adaptive Color and Contrast) & ACM-II (Active Color Management), image phase and position adjustment, Auto-configuration, Auto-signal detection, smart OSD adjustment, and perfect scaling function.

Before you start installation, please refer to the Hardware Installation Guide in Chapter 2 and Hardware Information in Chapter 3 for details and ensure each switch, connector, and jumper are set properly. We truly believe you will enjoy using the Spectrah ARV-17XX series products. Thank you for making this Spectrah AD converter board as your choice.

1.2 Check List

Before operating this AD converter board, please make sure that all the items listed below are present in your package:

- **One ARV-17XX AD converter board**
- **OSD470 (Optional)**
- **Display cable kits (Optional)**
- **Inverter (Optional)**
- **LED backlight driver (Optional)**
- **User manual (PDF file)**

1.3 Contact Information

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2 Hardware Installation Guide

WARNING - Static electricity can severely damage electronic parts. Take these precautions:

- Before touching any electronic parts, be sure you are properly grounded or that static electricity is discharged from your body. You can do this by touching the metal frame of your computer.
- Do not remove the product from the anti-static container it was shipped in until you are ready to install it. When you remove the product from your display device, place it back in its container.
- When handling a card, hold its edges, and avoid touching its circuitry.

Before you start the installation, please ensure that four required components are available: VGA card or mainboard with DB-15 connector, AD converter board ARV-17XX series, signal input cable, and panel cable (Connect ARV-17XX to LCD panel).

Note:

During the installation procedures, if you need pin definition, hardware specifications, or OSD features in detail, please refer to Chapter 3 (Hardware Information) and Chapter 4 (OSD Setup).

2.1 Set Panel VDD

There are 3 jumpers (JP807, JP808, JP809) on the ARV-17XX series to set appropriate VDD for LCD panels. Please refer to panel specifications in power supply voltage of LCD module before connecting to the ARV-17XX series. Otherwise, onboard +12V or +5V VDD setting in the ARV-17XX series may damage your LCD panel with lower power supply voltage like +5V or +3.3V. (Refer to section 3.1 in detail)

JP807	JP808	JP809
+3.3V	+5V	+12V

2.2 Set Backlight VDD

There are 3 jumpers (JP701, JP702, JP703) to allow user to set appropriate VDD for backlight controller like inverter or LED driver board. New hardware version ARV-17XX-A1.2X/ ARV-17XX-A1.3X allows user to set jumper to select +3.3V, +5V, or +12V DC for backlight controller. Old hardware version ARV-17XX-A1.1 only supports default +12V DC for backlight controller, without jumper setting for voltage change. Please refer to the power input in specification of backlight controller before connecting to ARV-17XX series. (Refer to section 3.2 in detail)

JP701	JP702	JP703
+3.3V	+5V	+12V

2.3 Connect panel cable

- Connect CN703 LVDS connector to panels through display cables.
- Connect CN702 TTL connector to panels through display cables.

2.4 Connect backlight power CN701

- Connect CN701 to backlight controller using 7-pin cable (If user has the power module for backlight controller, turn on backlight independently, without the need to connect cable to CN701).

2.5 Connect OSD touch pad

- Connect OSD-470/ 482 touch pad and cable to CN707.

2.6 Connect power adapter to turn on system

- Connect power cable from power adapter (+12V DC) to CN800/ or CN802 power connector (+12V DC is default).
- The LED of OSD-470/ 482 lights red and under normal condition, a small No Signal screen appears on the panel in 3 seconds. If not, please check whether power adapter or cable is connected firmly.

2.7 Connect signal input cables

- Plug analog VGA cable to CN302 or CN304.
- Plug DVI-I cable to CN303.
- Plug video cables (NTSC or PAL) to CN501, CN502, or CN507. (Optional for ARV-175X only)
- Plug audio input cable to CN601/CN603 and audio output cable to CN602/604. (optional for ARV-17X6 only)

2.8 Power on your computer

Power on your system. The LED of OSD-470/ 482 would light green when a supported active computer graphics is connected to ARV-17XX. The LED lights red when system enters standby or there is a loss of active source (Loss of sync in PC Graphics Mode). If the panel display is not normal such as dual screens, smaller screen, especially in the first installation, please select **Auto-Config** option in OSD to reconfigure all the parameter-settings and save the update parameters in onboard NVRAM. User can also enter in OSD setting to get correct image phase, position, and other OSD parameters. For detail, please refer to Section 4 for more OSD information.

2.9 Set OSD (On-Screen Display)

Following OSD features in Chapter 4, user can adjust brightness, contrast, image position, sampling phase, auto-configuration, OSD time-out, etc. and save the parameters in the NVRAM to generate an appropriate panel display yourself.

Note:

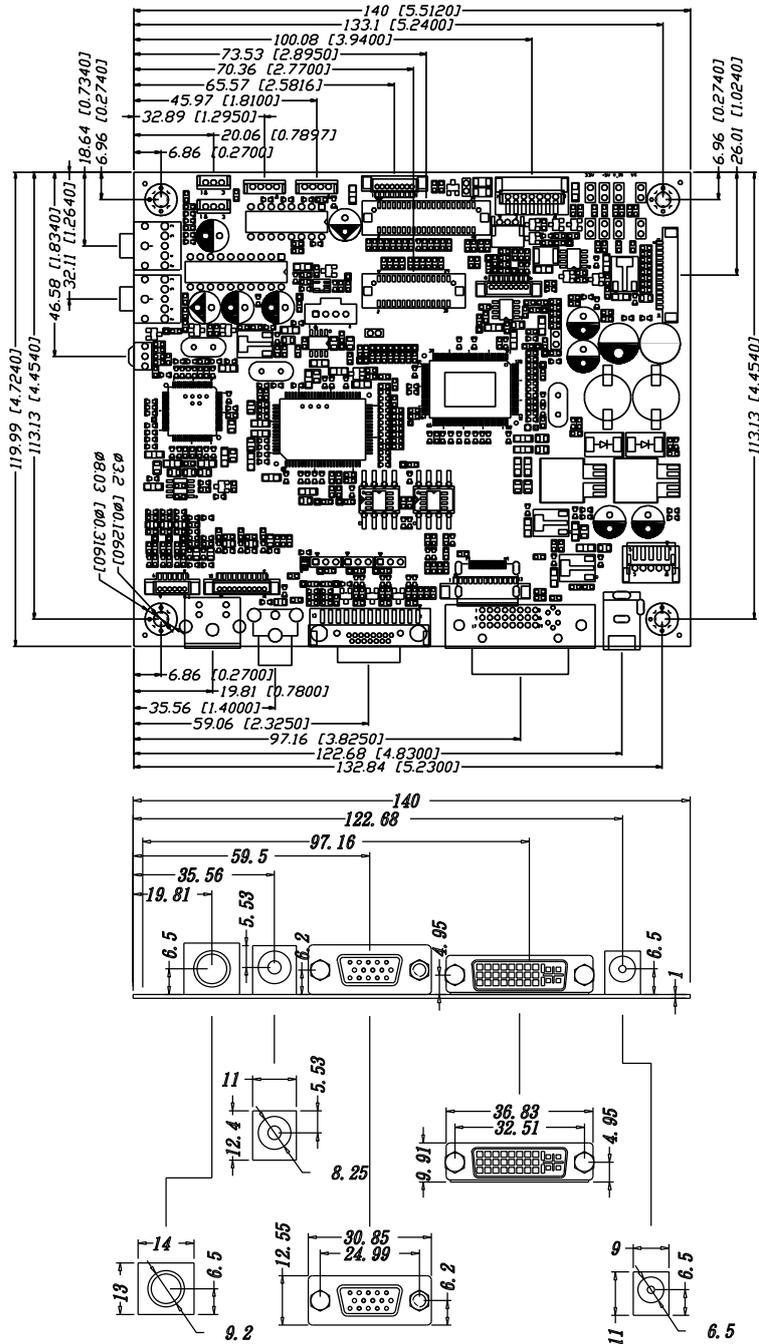
In the first setup or using a new VGA card, we suggest user to do **Auto-config** or adjust image Phase, Position, or Width through OSD to set appropriate parameters for LCD panel, especially for the analog RGB

input. The factory default setting may not meet user's requirements due to the difference RGB signal value from VGA controllers. In addition, if the horizontal noise appears on the panel screen, please select Image feature to adjust Phase to reduce the noise.

3 Hardware Information

Board Dimension: 140(L) x 120(W) mm (inch)

PCB Version: A1.2X/1.3X



ARV-170 Rev A1.2X / A1.3X

3.1 Working Voltage Setting for LCD Panel

JP807, JP808, and JP809 allow user to select working voltage in ARV-17XX series for LCD panel module, +3.3V, +5V, +12V. For details in LCD panel VDD setting, please refer to the LCD panel specifications.

Note1: The voltage of JP4 is dependent on the input voltage from the DC power adapter. +12V is the required DC voltage.

JP807	JP808	JP809
+3.3V	+5V	+12V

3.2 Working Voltage Setting for Backlight

JP701, JP702, and JP703 allow user to select working voltage in ARV-17XX series for the backlight module of LCD panel, 3.3V, +5V, +12V. The voltage in pin 1&2 of CN701 is set by JP701, JP702, or J703. For details in the backlight voltage setting, please refer to the LCD panel specifications.

Note1: The voltage of JP703 is dependent on the input voltage from the DC power adapter. +12V is the required DC voltage.

JP701	JP702	JP703
+3.3V	+5V	+12V

3.3 LVDS Connector CN703

- **Using connector:** Hirose DF13-30P connector compatible
- **Mating connector:** Hirose DF13-30S connector compatible

The ARV-17XX series provides one LVDS interface connector for LVDS panels. This connector can support single or dual channel LVDS output. The following table depicts the pin definition of CN703.

1	+5V	2	+3.3V
3	A0M	4	A4M
5	A0P	6	A4P
7	A1M	8	A5M
9	A1P	10	A5P
11	A2M	12	A6M
13	A2P	14	A6P
15	A3M	16	A7M
17	A3P	18	A7P
19	GND	20	GND
21	CLK1M	22	CLK2M
23	CLK1P	24	CLK2P
25	GND	26	GND
27	+12V	28	+12V
29	VDD_LCD	30	VDD_LCD

3.4 LCD TTL Level Connector CN702

- **Using connector:** Hirose DF13-40P connector compatible
- **Mating connector:** Hirose DF13-40S connector compatible

The ARV-17XX series provides a 40-pin connector for single channel of TTL type panels. If your panel is a dual pixels/clock mode (18-bit x 2, or 24-bit x 2), ARV-17XX series cannot support it. The following table depicts the pin definition of CN702.

1	GND	2	EB1
3	ER0	4	EB2
5	ER1	6	EB3
7	ER2	8	EB4
9	ER3	10	EB5
11	ER4	12	EB6
13	ER5	14	EB7
15	ER6	16	GND
17	ER7	18	SCLK
19	GND	20	GND
21	EG0	22	V-SYNC
23	EG1	24	H-SYNC
25	EG2	26	GND
27	EG3	28	DEN
29	EG4	30	+5V
31	EG5	32	+12V
33	EG6	34	+3.3V
35	EG7	36	VDD_LCD
37	GND	38	VDD_LCD
39	EB0	40	NC

3.5 Backlight Connector CN701

(JST S7B-PH compatible, 2.0mm pitch)

CN701 allows user to provide DC power from ARV-17XX series directly to backlight controller like inverter or LED driver board. User can also use external power module to power on backlight controller independently. For detail in backlight VDD setting, please refer to the specifications of backlight controller. The following table depicts the pin definition of CN701.

7	6	5	4	3	2	1
VR	PWM	On/Off	GND	GND	VDD_In	VDD_In

3.6 OSD Connector CN707

(Molex 53261-1490 compatible, 1.25 pitch)

CN707 allows user to plug in OSD cable and controller board. The following table depicts the pin definition of CN707.

7	6	5	4	3	2	1
N/C	N/C	Key_L	Enable	Reserve	GND	3.3V

14	13	12	11	10	9	8
LED_G	LED_R	GND	On/Off	GND	Menu	Key_R

3.7 DC Power-In Connector CN800, CN802

There are 2 connectors CN800 and CN802 to supply VDD power for ARV-17XX series. User can select either one connector as the major power input port.

- **DC Jack Connector CN800** (Diameter 2.1mm)
Plug power connector of AD adapter into CN800 to provide +12V DC current. At least 45 watt DC power source is suggested for normal system operation.
- **5-pin Wafer Power Connector CN802** (JST S5B-PH compatible)
Simply plug a 5-pin power connector into CN802 to provide +12V and GND for the ARV-17XX series.

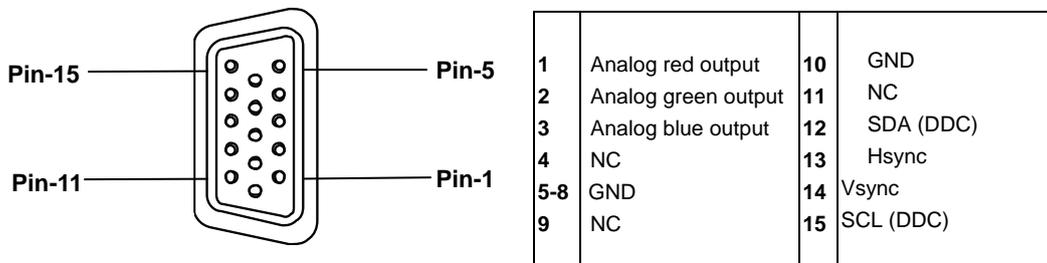
5	4	3	2	1
+12V	+12V	GND	GND	+5V

Warning!

Don't connect pin-1 (+5V) of CN802 except special OEM hardware version which requires external +12VDC. (External +5V DC power connecting to onboard +5V DC from power regulator may cause power voltage fluctuation.)

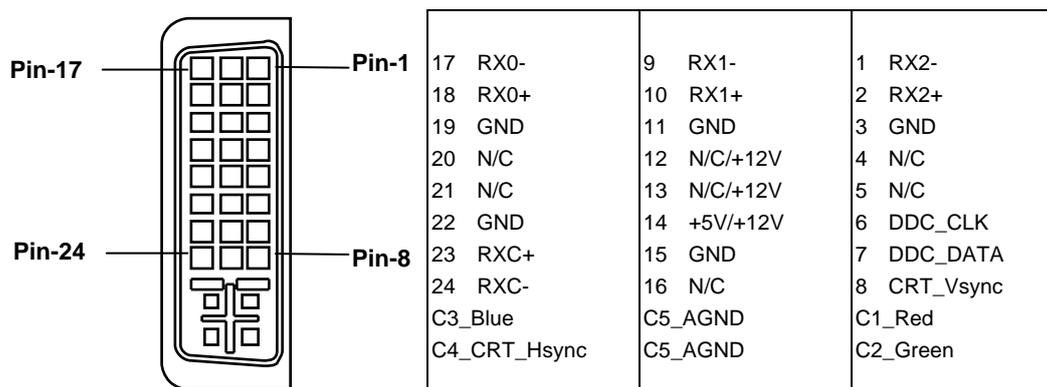
3.8 DB-15 Analog Connector CN302

CN302 is a standard DB-15 connector for analog RGB signals input. The following diagram and table depict the pin definition of CN302.



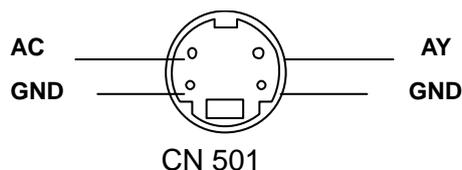
3.9 DVI-I Connector CN303 (ARV-172X/ 175X only)

CN303 is a DVI-I (Digital Visual Interface) connector which provides a PanelLink signal input interface for display device. The following diagram and table depict the pin definition of CN303.



3.10 Mini Din S-Video Connector CN501 (ARV-175X only)

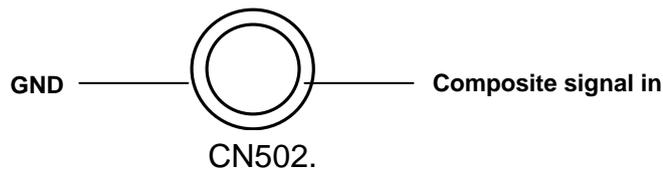
CN501 allows user to connect to NTSC/PAL video source using S-Video connection cable. The following diagram depicts the pin definition of CN501.



3.11 RCA Jack Composite Connector CN502

(ARV-175X only)

CN502 allows user to connect to NTSC/PAL video source using composite connection cable. The following diagram depicts the pin definition of CN502.



3.12 Slim Type YPbPr Connector CN507

(Molex 53261-0690 compatible, 1.25 pitch)

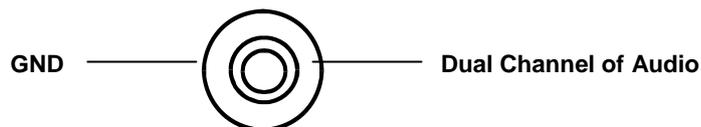
CN507 allows user to connect to NTSC/PAL video source using YPbPr connection cable. The following table depicts the pin definition of CN507.

6	5	4	3	2	1
Pb	GND	Pr	GND	Y	GND

3.13 Audio Input / Output Connectors

(CN601/CN603 & CN602/CN604) (ARV-17X6 only)

- Audio Input Jack: CN601
- Audio Output Jack: CN602



- Audio Input Wafer Connector: CN603 (JST S3B-PH compatible)
- Audio Output Wafer Connector: CN604 (JST S3B-PH compatible)

3	2	1
R_in	L_in	GND

CN603

3	2	1
R_out	L_out	GND

CN604

4 OSD Setup



4.1 General Description

The ARV-17XX series features an on-chip OSD (On-Screen Display) controller that creates the OSD user interface menus and overlays them onto the output data stream. User can adjust the display conditions on LCD monitor using the OSD-470/482 touch pad. After powering on, the AD controller restores itself to the last known conditions saved in Non-Volatile Random Access Memory (NVRAM). All parameters (Settings) are saved whenever user selects Save/Exit icon in each OSD feature item. Not making a selection within a defined time period causes the OSD menu to close. The OSD time-out variable may be user-selected from the Tool menu item. The LEFT (S4) and RIGHT (S3) keypad push buttons are used to scroll through items within the main menu. The selected item is highlighted. The MENU key (S1) is used to open and close the OSD menu. In OSD menu, S1 key is also defined as CONFIRM key to activate the highlighted item. S2 Key is defined as the ENABLE key for VideoWindowDefine, ACC and ACM features. Power Save button (S5) enables user to place the system in a low power mode. From the low power mode, pushing S5 button wakes up the microcontroller to perform a LCD power-up sequence.

4.2 Feature Description

4.2.1 Input Interface Setting



There are 5 input interfaces in ARV-17XX series to accept computer RGB analog and digital signals and also video signals through S-Video, Composite and YPbPr ports.

- **Analog Input**
- **Digital Input (ARV-17XX series only)**
- **S-Video Input**
- **Composite (CVBS) Input**
- **YPbPr Input (ARV-1750 only)**

4.2.2 Brightness / Contrast / Hue / Saturation Adjustment



- **Brightness** - Press S4 and S3 to adjust the brightness of LCD backlight directly. This feature should work together with the backlight controller which provides PWM (Pulse Width Modulation) or Current/ Voltage control feature. The PWM or Current control pin of panel backlight controller should be connected to pin-6 of CN701.
- **Contrast** - Press S4 and S3 to adjust contrast setting.
- **Hue** - Press S4 and S3 to adjust video hue level (for video signal only).
- **Saturation** - Press S4 and S3 to adjust video saturation (for video signal only).

4.2.3 Audio Volume Adjustment

- Press S4 and S3 to adjust audio volume (ARV-1726/ 1736/ 1756 only).



4.2.4 Color Adjustment



- **Auto Color Setup** - Press S1 to do Auto Color Setup.
- **Standard Color Setup** - Press S1 to set standard color defined in MS Windows.
- **RGB Color Temperature Setting and Color Adjustment** - Press S4 and S3 to select color temperature or adjust RGB color depth.
- **DefineVideoWindow** - Press S2 to enable this function and then S1 to select four types of windows screen: Full Screen, 16:9, 16:10, and Left Half Screen.
- **ACC (Adaptive Color and Contrast)** - Press S2 to enable this function and then S1 to select appropriate ACC setting and YCLink to enhance the contrast and color of the images in video display. This function is terminated when DefineVideoWindow feature is disabled.
[Most video content is tailored for display on CRTs or in movie theatres. However, CRT monitors have a wider dynamic range than LCD TVs. Therefore, Genesis GM5221 chip is designed to enhance the dynamics range when video is displayed using LCD TV type screen. Adaptive Color and Contrast (ACC) enhances the contrast of the image to account for.]
- **ACM-II (Active Color Management)** - Press S2 to enable this function and then S1 to adjust Fresh Tone, Color Enhance, and Green Enhance.
[Active Color Management provides TV style control of global color parameters like Hue, Saturation, and Contrast, and local color changes such as skin tone correction, color & green enhance etc. It can be applied within a highlight window or over the full display area.]

4.2.5 Image Setting



- **Auto-Config** - Press S1 to automatically configure an optimal display setting.
- **Image Width** - Press S4 and S3 to adjust image width.
- **Phase Adjustment** - Press S4 and S3 to adjust the signal phase in the analog to digital converter.
- **H-Position** - Press S4 and S3 to move the screen left or right by moving the analog capture window.
- **V-Position** - Press S4 and S3 to move the screen up or down by moving the analog capture window.

4.2.6 Tools



4.2.6.1 OSD Control

- **Timeout** - Press S4 and S3 to decrease or increase the amount of time that elapses before the menu disappears.
- **OSD H-Position** - Press S4 and S3 to adjust the horizontal position of the OSD main menu.
- **OSD V-Position** - Press S4 and S3 to adjust the vertical position of the OSD main menu.
- **OSD Direction** - Press S1 to enable OSD direction functions and then S3 and S4 to set required OSD menu direction.
 - OSD_Normal
 - OSD_Mirroring-H
 - OSD_Rotation-270
 - OSD_Rotation-90
 - OSD_Mirroring-H-V

4.2.6.2 Factory Reset

- Press S1 key to reset all user settings and then previous setting stored in NVRAM will be lost. This feature helps user return back to original default setting in NVRAM, especially when user changes onboard firmware ROM and then panel display become blank or noisy.

4.2.6.3 Color Reset

- Press S1 to reset all user settings in colors and then previous setting stored in NVRAM will be lost. This feature helps user return back to original default color setting in NVRAM.

4.2.6.4 Position Reset

- Press S1 to reset all user settings in position and then previous setting stored in NVRAM will be lost. This feature helps user return back to original default color setting in NVRAM.

4.2.6.5 Sharpness

- Press S1 and then S4 and S3 to adjust Sharpness.

4.2.6.6 Overlap 640 x 720

- Press S1 to set Overlap 640x480@60 and 720x400@70 modes.

Warning!

If there is no input signal detected by the system, a warning message, No Signal is displayed by the OSD until the supported input source is detected by the system.

5 Trouble Shooting

This section contains solutions to problems you may encounter you're your Spectrah product. We first suggest you follow the steps in the Hardware Installation section in Chapter 2 again to check if you missed any steps to cause your panel to not work properly.

Problem 1	No image on the panel after powering on.
Cause 1	Connection error in power, display cables, inverter, or VGA card.
Solution	If the LED of OSD-482 does not light red, ensure the following connectors and cables have been connected firmly and correctly in order. 1. CN800/ CN802 to a major +12V DC power source 2. CN701 to the backlight inverter, default setting +12V 3. CN703 & CN702 to panel cable 4. CN707 14-pin OSD connector to OSD-482 touch pad
Cause 2	Firmware controller is not appropriate for display panel.
Solution	If no small blue screen appears in the center of panel in 3 seconds after powering on system, please ensure the firmware controller in U403 meet your panel specifications.
Cause 3	VGA or video display cable connection error or display devices fail.
Solution	If panel screen show you No Signal after powering on ARV-17XX series and computer, ensure the VGA card operates normally and the R.G.B signals have been transferred to ARV-17XX series completely through connection cable. Incorrect refresh rate or resolution mode from graphic card may cause no image on the screen.
Problem 2	Texts or colors on panel screen are not smooth.
Cause 1	Wrong VDD setting for LCD panel or panel fail.
Solution	Ensure the default panel VDD setting on ARV-17XX meet the panel specifications. Second, ensure LCD panel functions are normal.
Cause 2	Odd/Even signal connection error.
Solution	Exchange cable pin connection for Odd signal and Even signal line.
Cause 3	Signals from VGA card are not converted properly.
Solution 1	Press Auto-config feature or adjust Image Phase or Width in OSD to adjust signal phase and clock timing.
Solution 2	Change RGB input cable and select good quality connection cable.
Problem 3	Display screen is not in the center of panel or two or four similar images appear on the LCD panel simultaneously.
Cause	Default configuration setting in analog RGB signals is not compatible with new VGA controller.
Solution	Most users may meet this problem when operating ARV-17XX series in the first time or changing a new VGA card in the computer system. Use Auto-Config option in OSD setting menu to reconfigure all the parameter setting or adjust image Phase and Width (Clock) or other OSD parameters in the onboard NVRAM and Save them.

Problem 4	H-sync noise or V-sync noise appear on the Grey Level of test pattern.
Cause	Image phase or clock does not match.
Solution	Select OSD Image feature and adjust Phase (H-noise) or Width (V-noise) to remove the noise. You can also remove +12V DC adapter to turn off ARV-17XX and turn on again. The system may configure all the settings again.
Problem 5	Horizontal/ vertical stripes or flickering/ flashing display appear on the panel.
Cause 1	Panel power input or inverter power input is not set correctly.
Solution	Refer to the panel specifications in power supply voltage of panel module and make sure ARV-17XX model name is appropriate for your panels.
Cause 2	Panel fail.
Solution	Change panel.
Problem 6	LCD screen shows No Signal or Out Of Range when computer is powered on.
Cause 1	Signal input from VGA card is not stable
Solution	Make sure RGB analog cable is connected to CN302 firmly and VGA card operate normally. Or, use a good quality of RGB analog cable to replace old cable.
Cause 2	RGB signal input timing is not supported by default resolution mode in ARV-17XX firmware. Then, screen show Out Of Range.
Solution	Change to other VESA standard resolution mode or ask Spectrah FAE to help adjust firmware to allow special timing signals input.

6 Product Specifications

ADC Controller

Genesis GM5221 (ARV-175X) / GM5321 (ARV-170X/172X)
Adaptive color and contrast enhancement (Genesis ACC & ACM-II features)
8-bit triple-channel ADC/PLL
Scaling engine
OSD controller
Hue, Saturation, Brightness, Contrast, Color Temperature adjustment

Video decoder

Micronas VPC 3230D video decoder
High-performance adaptive comb filter
Multi-standard color decoder NTSC/PAL/SECAM

Input Port

DB-15 analog VGA interface
DVI-I digital interface (ARV-172X/ 175X only)
RCA jack composite signal interface (ARV-175X only)
Mini Din S-Video signal interface (ARV-175X only)
YPbPr input interface (ARV-175X only)
Audio input interface (ARV-1726/1756 only)

Image Processing Features

Auto-detection (Input format detection)
Auto-configuration (Input positioning & Clock phase)

On Screen Display (OSD)

Auto setup
Brightness/ Contrast adjustment
ACC/ ACM-II color enhancement & Contrast adjustment
Image V-Position/ H-Position adjustment
Auto color reset/ Standard color setup
Hue/ Saturation/ Color temperature adjustment

Power-In Support

LCD Panel: +3.3V, +5V, +12V

Backlight Controller: +3.3V, +5V, +12V

Panel Support

TFT VGA 640 x 480

TFT SVGA 800 x 600

TFT XGA 1024 x 768

TFT SXGA 1280 x 1024

Single 18-bit or Dual 48-bit/36-bit LVDS panels

Single 24-bit TTL panels

Panel Connection

One 40-pin TTL connector

One 30-pin LVDS connector

Audio Amplifier (ARV-1706, 1726, 1756 only)

Stereo 2W+2W class AB power amplifier for left and right channel of speakers.

Image Scaling

Scale up/ down a lower/ higher resolution images to fit higher/ lower resolution panels

VESA Standard

Supports VESA DDC2B and a subset of VESA DPMS standards

On board EDID ROM compliant with VESA DDC2B 1.X (Optional)

Power Consumption

4.08 Watt (ARV-17XX board only without connection to LCD panel) (+12V DC input)

Power Requirement

Note: The complete power requirement is dependent on what LCD panel connected to ARV-17XX series. Around 60 Watt power adapter is recommended to supply +12V DC power for ARV-17XX series and LCD panels under 22" size. For more detail in power requirement, please contact Spectrah Customer Service Center for more information.

Board Dimension

140 (L) x 120 (W) mm

Weight

ARV-1700 (85 g)

ARV-1720 (85 g)

ARV-1750 (95 g)

Operating Temperature & Humidity

-30°C to 80°C; ~ 90%RH

Storage Temperature & Humidity

-40°C to 95°C; ~ 95%RH

Mode Table

VGA	SVGA	XGA
640 x 480 x 60HZ	800 x 600 x 56HZ	1024 x 768 x 60HZ
640 x 454 x 66.2HZ	800 x 600 x 60HZ	1024 x 768 x 70HZ
640 x 480 x 72HZ	800 x 600 x 72HZ	1024 x 768 x 75HZ
640 x 480 x 75HZ	800 x 600 x 75HZ	1024 x 768 x 85HZ
640 x 480 x 85HZ	800 x 600 x 85HZ	
640 x 480 x 66HZ	832 x 624 x 75HZ	

SXGA	WXGA
1280 x 1024 x 60HZ	1366 x 768 x 50HZ
1280 x 1024 x 75HZ	1366 x 768 x 60HZ
1280 x 1024 x 85HZ	1366 x 768 x 75HZ
	1366 x 768 x 85HZ
	1280 x 720 x 60HZ
	1280 x 720 x 75HZ
	1280 x 720 x 85HZ
	1280 x 768 x 60HZ
	1280 x 768 x 75HZ
	1280 x 768 x 85HZ

Video	Overlapped Modes
NTSC/480I/525I - 720 x 240 x 60I	640 x 350 x 70HZ
PAL 525I - 720 x 240 x 50I	720 x 350 x 70HZ
	720 x 400 x 70HZ
	640 x 400 x 70HZ

7 Customer Support

Spectrah Web Site

You can download the latest drivers and product specifications from the Spectrah Web site: **www.spectrah.com**

If you have any problem, we recommend that you follow the procedure below for the quickest results.

- **Contact your dealer:** This is usually the quickest and most effective method of technical assistance. Your dealer is local and may be familiar with your complete system. In the case of hardware warranty assistance, the product must be returned to the dealer, who will return it to Spectrah.
- **Fax Support:** Call Spectrah fax service at **886-2-86472201**.
- **Email Us:** Send your problems to Spectrah customer service center. The email address is: **spec_support@spectrah.com**

Information We Need

Please give a complete description of the problem and please include:

- Spectrah board serial number, model number, PCB version number.
- Product model name, ROM/driver version, and relative configuration setting.
- Computer brand name, system BIOS manufacturer, and version number or release date, bus type, processor speed, and amount of memory.
- LCD panel brand and model name.
- Brand and model of any other cards and devices installed on your system.

Program Specific Problems

If a problem appears with a specific program, please give us the following information:

- Display settings (color palette, display resolution, and so on) applied when the problem occurs.
- Program name and version. Name of any add-on packages you are using.

- If possible, take note of the file and segment address that caused the problem.
- Detailed steps known to cause the bug.

8 Notice

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<p>Product Name: Spectrah ARV-17XX controller board Document Revision: 2.6 Release Date: May-19-2012</p>
