Interface Conversion Adaptor(LVDS to DVI)

IA-542-A

Instruction Manual

Ver.1.0

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(LVDS to DVI)

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Instruction Manual

2006.2

Ver.1.0

ASTRODESIGN,Inc

Contents

Before Use

Introduction

Thank you for very much purchasing the model IA-542-A LVDS to DVI conversion adapter.
This manual contains details on the operation procedures to be followed when the IA-542-A is used, the checkpoints and precautions to be observed, and so on.
Before using the IA-542-A, please read through these instructions.
After reading the manual, keep it in a safe place for future reference.

Safety precautions

Improper handling may lead to malfunctioning or accidents. Before using this adapter, be absolutely sure to read through the safety precautions listed below: they will help to ensure that you will operate the adapter correctly.

■ **Meaning of the symbols used in this manual**

⚠ **WARNING**	This indicates an aspect of the adapter, which if it is handled improperly, may result in serious bodily harm (including death or serious injury) and/or impairment of the adapter's original functions.
⚠ **CAUTION**	This indicates an aspect of the adapter, which if it is handled improperly, could result in bodily injury, impairment of the adapter's original functions and/or property damage.
⊘	This indicates that an action is prohibited (that is to say, an action which must not be undertaken). Specific details are provided in the figures or text near ⊘ .
❗	This indicates an instruction which must be performed mandatorily. Specific details are provided in the figures or text near ❗ .

■ **Observe the following precautions to ensure safe operation.**

⚠ **WARNING**	Do not spill liquids inside the adapter or drop inflammable objects or metal parts into it. Operating the adapter under these conditions may cause a fire, electric shocks and/or malfunctioning.	⊘
⚠ **CAUTION**	Install the adapter in a stable location. Do not stand it on its side. Rises in temperature caused by heat generation may result in malfunctioning.	❗
	Do not subject the adapter to impact. Doing so may result in malfunctioning. Take sufficient care when moving the adapter.	⊘
	When accuracy is a priority, leave the adapter for about 10 to 15 minutes after turning on its power, and wait until its operation has stabilized before starting to use it.	❗
	In the unlikely event that trouble has occurred, disconnect the adapter's cables, and contact your dealer or an Astrodesign sales representative.	❗

How this manual is configured

This manual contains the operating instructions for the IA-542-A. Information on the operating methods, precautions and other aspects are presented in the following sections. Please read through this manual to ensure that you will operate the adapter correctly.

1. **Before use**
   The safety precautions, configuration of the manual and packing details of the adapter are described in this section.
2. **Concerning the IA-542-A**
   A general description of the IA-542-A is given in this section.
3. **Appendix**
   Additional information is provided in this section.

Packing details

The following items are included with this product. Since the use of any other accessories may lead to malfunctioning, be absolutely sure to use the accessories provided.

■ **Standard items**

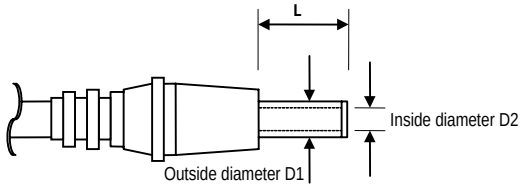
- IA-542-A
- IA-542-A instruction manual (what you are reading): 1 copy

■ **Optional items**

- AC adapter, S-8453 (made by Kaga component Corp.)
  The IA-542 –A is designed to run using a DDC power supply. If a DDC power supply cannot be used, the IA-542 –A can also be run on the power supplied from this AC adapter.

S-8453 specifications	
Rated output voltage (V)	5
Rated output current (A)	2
Input voltage (VAC)	100 to 240 (rating: 100)
Input power line frequency (Hz)	47 to 63 (rating: 50/60)

Plug shape	
EIAJ	RC-5320A
Voltage classification	2
Outside diameter D1	4.0
Inside diameter D2	1.7
Length (L)	9.5
Polarity display symbol	



Plug shape

1 Concerning the IA-542-A

1.1. Outline

The IA-542 (LVDS to DVI conversion adapter) converts LVDS inputs into DVI-D signals and outputs them.

1.2. Features

- **Dot clock frequency in wide band**
  Table 1-2-1 shows the frequency specifications of the input and output dot clocks.

Table 1-2-1 Frequency specifications

Clock mode	LVDS input (MHz)	DVI output (MHz)
1/1	25 to 90	25 to 90
1/2	20 to 82.5 x 2CH	40 to 165

- **Operation using DDC power supply enabled**
  The IA-542 can be run using a DDC power supply. This obviates the need for a power cable, and enables the compactness of the adapter to be retained. If a DDC power supply is not available, use of the AC adapter that is provided as an optional accessory makes it possible to switch over to power supplied from an external source.

1.3. Parts and their functions

1.3.1. IA-542-A front panel

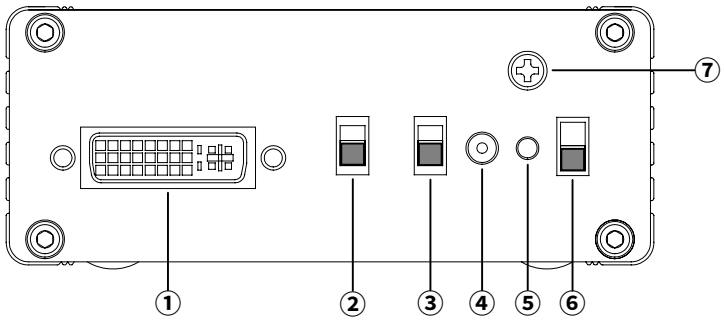


Fig.1-3-1 Front panel

1. DVI digital serial connector
2. Clock mode selector switch: For switching the clock mode 1/1 to 1/2 or vice versa
3. DISM/OpenLDI selector switch
4. DC jack
5. LED: Lights when the power is on.
6. Power switch
7. Frame ground (FG): Connect here to share the frame ground of the equipment which is connected to the I A-542-A

CAUTION

Always use the power switch to turn the power ON or OFF. Turning the power ON or OFF by connecting or disconnecting the cable may damage the adapter.

1.3.2. IA-542-A rear panel

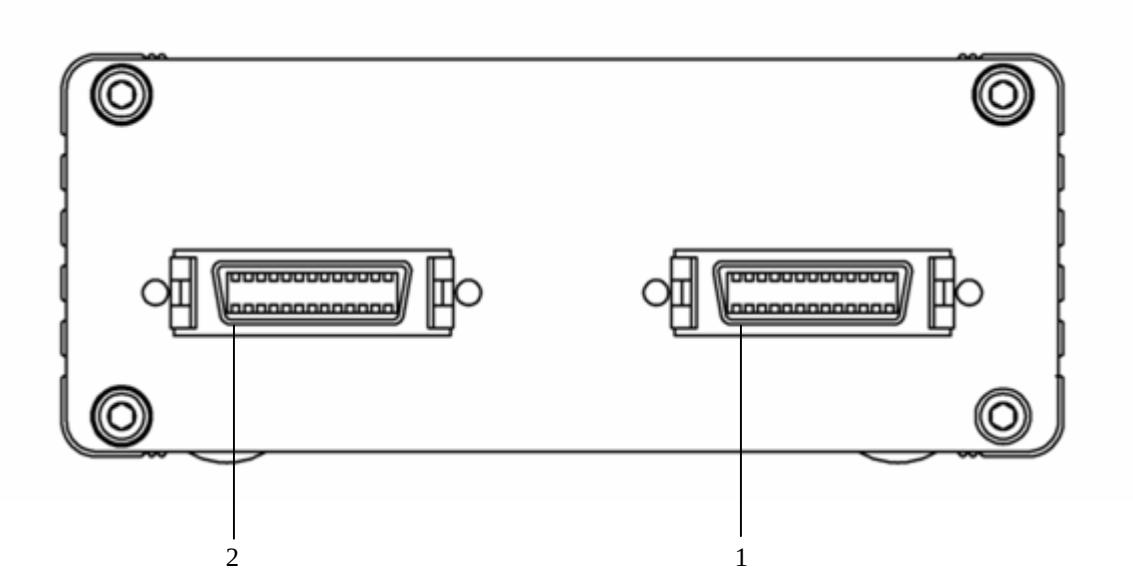


Fig. 1-3-2 Rear panel

1 LVDS input connector (CH1)
2 LVDS input connector (CH2)

2 Appendix

2.1. Connector pin layouts

2.1.1. LVDS input connectors

- Connector: Made by 3M (10226-1210-VE)
- Input: LVDS

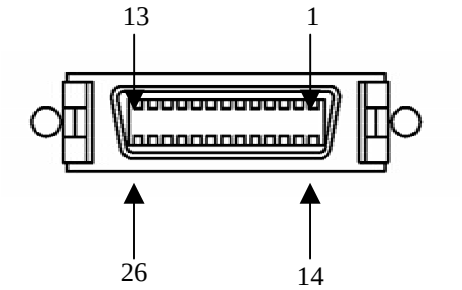


Fig. 2-1-1 Pin layout

Table 2-1-1 Pin numbers

Pin no	Input signal	Pin no	Input signal
1	DDC_GND	14	RD＋
2	AGND（RD）	15	RD－
3	DDC_AVCC（+5V）	16	AVCC（+5V）
4	RCLK＋	17	AGND（RCLK）
5	RCLK－	18	DDC / SCL
6	RE＋	19	AGND（RE）
7	RE－	20	RC＋
8	AGND（RC）	21	RC－
9	DDC / SDA	22	RB＋
10	AGND（RB）	23	RB－
11	GND	24	SENS
12	RA＋	25	AGND（RA）
13	RA－	26	GND

2.1.2. DVI digital serial input connector

- Connector: DVI-I (74320-1004) made by Molex
- Output: TMDS

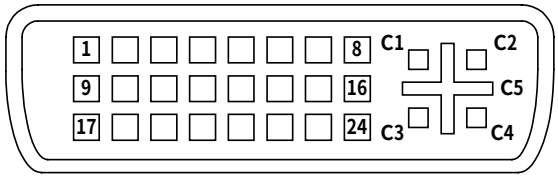


Fig. 2-1-1 Pin layout

Table 2-1-1 Pin numbers

Pin no.	Signal	Pin no.	Signal
1	TMDS DATA2-	16	SENSE
2	TMDS DATA2+	17	TMDS DATA0-
3	TMDS DATA2/4 G	18	TMDS DATA0+
4	-	19	TMDS DATA0 G
5	-	20	-
6	DDC CLK	21	-
7	DDC DATA	22	TMDS CLK G
8	-	23	TMDS CLK+
9	TMDS DATA1-	24	TMDS CLK-
10	TMDS DATA1+	C1	-
11	TMDS DATA1 G	C2	-
12	-	C3	-
13	-	C4	-
14	+5V	C5	-
15	GND	-	-

1:1 Panel Link signals are output from this connector.
* The maximum supply current when the +5V voltage is supplied (pin 14) is 0.5A.
* For details on the DDC power supply, refer to "3.3.3 Concerning the DDC power supply."

2.2. Device input pin support

2.2.1. LVDS receiver device pin support

- The table below shows the correspondence between the data output pins of the LVDS receiver and the RGB data.
- LVDS receiver: THC63LVD104A [THINE]

Table 2-2-1 LVDS device pin support table

LVDS reciever Pin assign		DATA【DISM】		DATA【OpenLDI】	
		CH1	CH2	CH1	CH2
RA	RA0	RA2	RB2	RA0（LSB）	RB0（LSB）
	RA1	RA3	RB3	RA1	RB1
	RA2	RA4	RB4	RA2	RB2
	RA3	RA5	RB5	RA3	RB3
	RA4	RA6	RB6	RA4	RB4
	RA5	RA7（MSB）	RB7（MSB）	RA5	RB5
	RA6	GA2	GB2	GA0（LSB）	GB0（LSB）
RB	RB0	GA3	GB3	GA1	GB1
	RB1	GA4	GB4	GA2	GB2
	RB2	GA5	GB5	GA3	GB3
	RB3	GA6	GB6	GA4	GB4
	RB4	GA7（MSB）	GB7（MSB）	GA5	GB5
	RB5	BA2	BB2	BA0（LSB）	BB0（LSB）
	RB6	BA3	BB3	BA1	BB1
RC	RC0	BA4	BB4	BA2	BB2
	RC1	BA5	BB5	BA3	BB3
	RC2	BA6	BB6	BA4	BB4
	RC3	BA7（MSB）	BB7（MSB）	BA5	BB5
	RC4	HS	NC	HS	HS
	RC5	VS	NC	VS	VS
	RC6	DISP	NC	DISP	DISP
RD	RD0	RA0（LSB）	RB0（LSB）	RA6	RB6
	RD1	RA1	RB1	RA7（MSB）	RB7（MSB）
	RD2	GA0（LSB）	GB0（LSB）	GA6	GB6
	RD3	GA1	GB1	GA7（MSB）	GB7（MSB）
	RD4	BA0（LSB）	BB0（LSB）	BA6	BB6
	RD5	BA1	BB1	BA7（MSB）	BB7（MSB）
	RD6	NC	NC	NC	NC
RE	RE0	NC	NC	NC	NC
	RE1	NC	NC	NC	NC
	RE2	NC	NC	NC	NC
	RE3	NC	NC	NC	NC
	RE4	NC	NC	NC	NC
	RE5	NC	NC	NC	NC
	RE6	NC	NC	NC	NC

2.2.2. DVI transmitter device pin support

- The table below shows the correspondence between the data input pins of the DVI transmitter and the RGB data.
- DVI transmitter: SiI160CT100 [Silicon Image]

Table 2-2-2 DVI device pin support table

EVEN CH		ODD CH	
DVI Transmitter's Pin Assign	DATA	DVI Transmitter's Pin Assign	DATA
DIE0	B0	DIO0	B0
DIE1	B1	DIO1	B1
DIE2	B2	DIO2	B2
DIE3	B3	DIO3	B3
DIE4	B4	DIO4	B4
DIE5	B5	DIO5	B5
DIE6	B6	DIO6	B6
DIE7	B7	DIO7	B7
DIE8	G0	DIO8	G0
DIE9	G1	DIO9	G1
DIE10	G2	DIO10	G2
DIE11	G3	DIO11	G3
DIE12	G4	DIO12	G4
DIE13	G5	DIO13	G5
DIE14	G6	DIO14	G6
DIE15	G7	DIO15	G7
DIE16	R0	DIO16	R0
DIE17	R1	DIO17	R1
DIE18	R2	DIO18	R2
DIE19	R3	DIO19	R3
DIE20	R4	DIO20	R4
DIE21	R5	DIO21	R5
DIE22	R6	DIO22	R6
DIE23	R7	DIO23	R7
HSYNC	HSYNC	─	─
VSYNC	VSYNC	─	─
DE	DISP	─	─
CTL1	TX_CTL1 ※	─	─
CTL2	TX_CTL2 ※	─	─
CTL3	TX_CTL3 ※	─	─

- Data indicated by an asterisk (*) TX_CTL1 to TX_CTL3 are fixed at "low" output only.

2.3. IA-542 –A specifications

2.3.1. Specifications

Input	LVDS（×2CH）		
Output	DVI （×1CH）		
Frequency	Clock mode	Input［MHz］	Output［MHz］
	1 / 1	25 ～ 90 （×1CH）	25 ～ 90
	1 / 2	20 ～ 82.5（×2CH）	40 ～ 165
LVDS Input	DISM		
	Open LDI		

2.3.2. Ratings

Supply voltage	+5V±5%（ACAdaptor or LVDS connecotor ）
Power consumption	Approx. 3.5W
Weiight	Approx. 400 g
Operation temperature	5 ～ 40℃
Storage temperature	-10 ～ 60℃
Humidity	30 ～ 80%（No condensation）
Dimensions	100 (W)×40 (H)×100 (D) mm

2.3.3. Concerning the DDC power supply

The LVDS output of the IA-542-Aprovides the DDC power (+5V) supply.
The maximum supply current of the DDC power supply is 0.5A.

The DDC power is output as shown below.

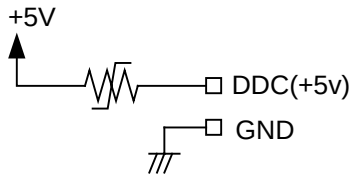
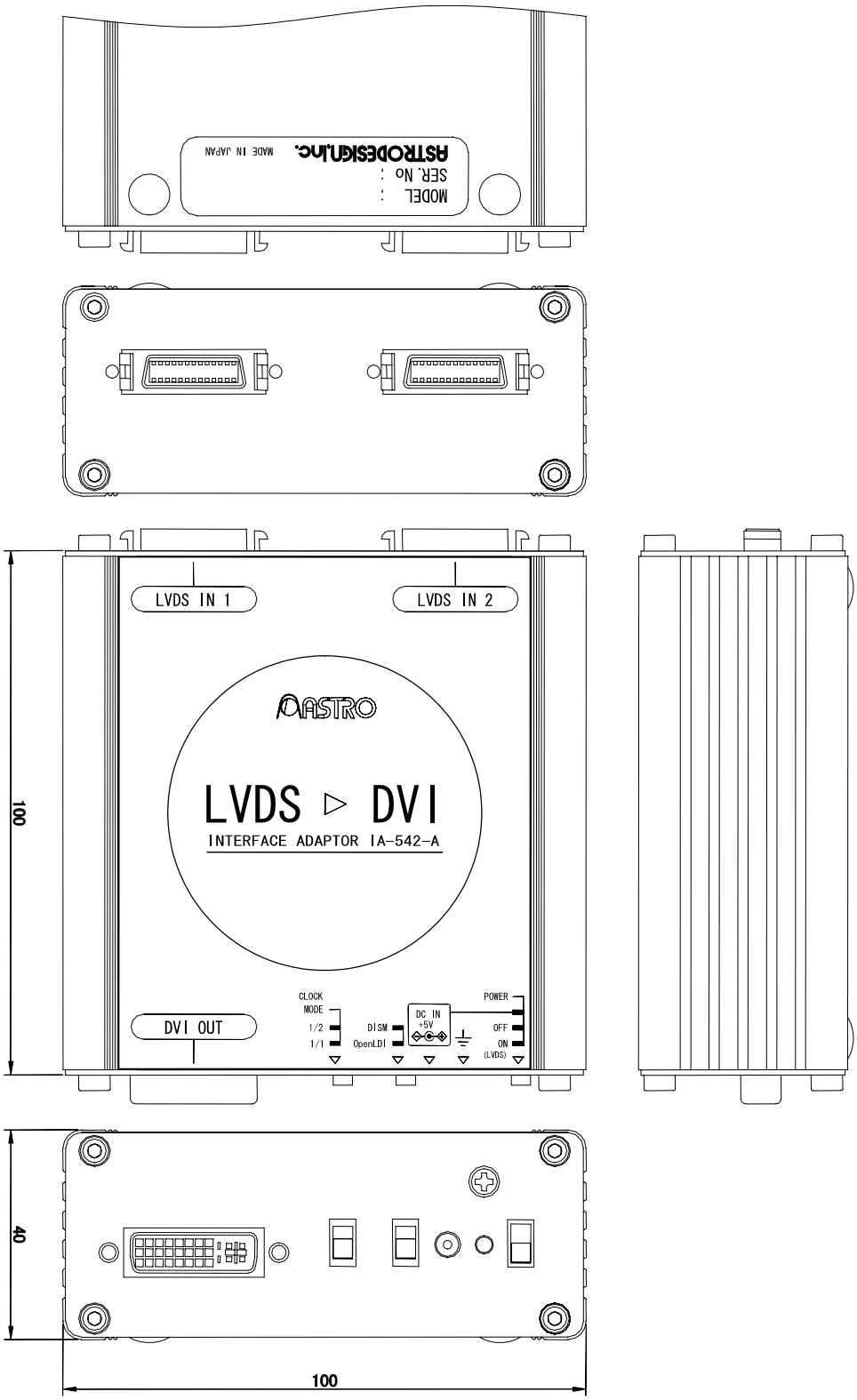


Fig. 2-3-1 DDC power output circuit

CAUTION

- Although the DDC power supply incorporates an overcurrent protection device, it should not be used at current levels exceeding the rating.
- Under no circumstances must power be supplied from the connected device to the DDC power supply. If power is connected, the IA-542-A and connected device may malfunction.

2.3.4. Outline drawings



IA-542-A

NOTICE

- An incorrectly collated manual or a manual with missing pages will be replaced.
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- The contents of this manual are subject to change without prior notice due to improvements.
- The manufacturer will not be liable for any effects caused by incorrect operation.
- All inquiries concerning this product should be addressed to your dealer or to the manufacturer at the contact numbers given below.
- The products and product names mentioned in this manual are the trademarks and registered trademarks of the companies concerned.

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