Contents

1 Before Use

1.1. Introduction

Thank you very much for purchasing this IA-546 LVDS-to-analog conversion adapter.
This manual contains details on the operation procedures to be followed when the IA-546 is used, the checkpoints and precautions to be observed, and so on.
Before using the IA-546, please read through these instructions.
After reading the manual, keep it in a safe place for future reference.

1.2. 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.	❗

1.3. How this manual is configured

This manual contains the operating instructions for the IA-546. 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-546**
   A general description of the IA-546 is given in this section.
3. **Appendix**
   Additional information is provided in this section.

1.4. 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-546
  - IA-546 instruction manual (what you are reading): 1 copy

- **Optional items**
  - AC adapter, SSA0515A9
  - The IA-546 is designed to run using a DDC power supply. If a DDC power supply cannot be used, the IA-546 can also be run on the power supplied from this AC adapter.

SSA0515A9 specifications	
Rated output voltage (V)	5
Rated output current (A)	1.7
Input voltage (VAC)	90 to 132 (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	

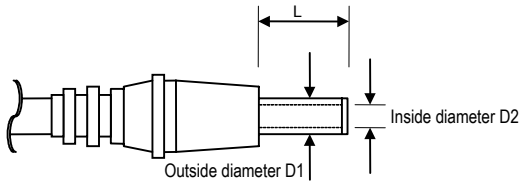

Fig. 1-4-1 Plug shape

2 Concerning the IA-546

2.1. Outline

The IA-546 (LVDS-to-analog conversion adapter) converts LVDS inputs into RGB analog signals and outputs them.

2.2. Features

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

Table 2-2-1 Frequency specifications

LVDS input (MHz)	Analog output (MHz)
20 to 90	20 to 90

- **Operation using DDC power supply enabled**
  The IA-546 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.

2.3. Parts and their functions

2.3.1. IA-546 front panel

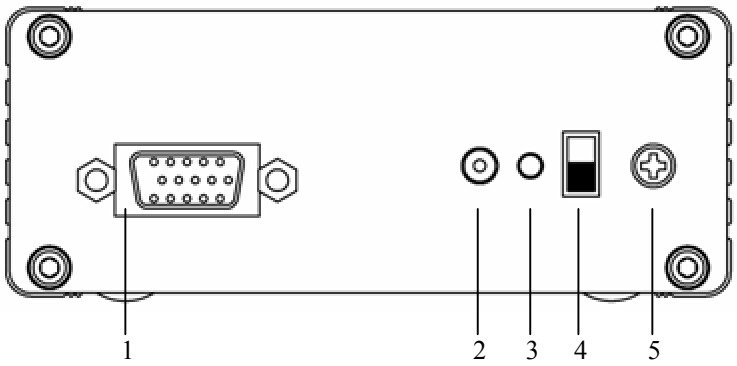

Fig. 2-3-1 Front panel

1 D-Sub connector
2 DC jack
3 LED: Lights when the power is on.
4 Power switch
5 Frame ground (FG): Connect here to share the frame ground of the equipment which is connected to the IA-543.

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.

2.3.2. IA-546 rear panel

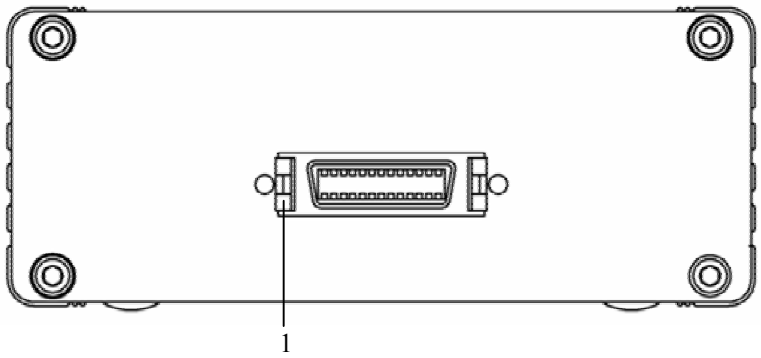

図 2-3-2 Rear panel

1 LVDS connector

3 Appendix

3.1. Connector pin layouts

3.1.1. DVI digital serial input connector

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

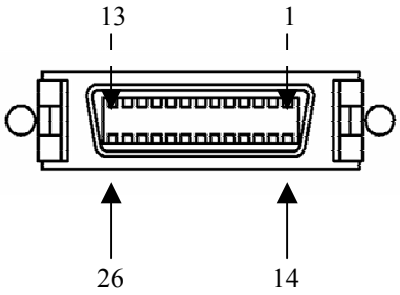

Fig. 3-1-1 Pin layout

Table 3-1-1 Pin numbers

Pin no.	Signal	Pin no.	Signal
1	GND	20	RC+
14	RD+	8	RC G
2	RD G	21	RC-
15	RD-	9	DDC/SDA
3	+5V	22	RB+
16	+5V	10	RB G
4	RCLK+	23	RB-
17	RCLK G	11	GND
5	RCLK-	24	SENS
18	DDC/SCL	12	RA+
6	RE+	25	RA G
19	RE G	13	RA-
7	RE-	26	GND

3.1.2. D-Sub connector

- Connector: D-Sub 15 pins, 17HE-B13150-74HC2 made by DDK
- Output: Analog RGB signals

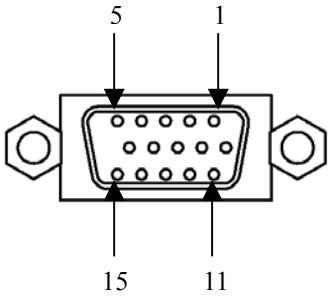

Fig. 3-1-2 Pin layout

Table 3-1-2 Pin numbers

Pin no.	Signal
1	R
2	*G
3	B
4	NC
5	GND
6	GND
7	GND
8	GND
9	+5V
10	GND
11	NC
12	DDCSDA
13	HS
14	VS
15	DDCSCL

* A G-on-Sync function can be added.
  For further details on the G-on-Sync function, refer to "3.3.4 G-on-Sync function."
* The maximum supply current when the +5V voltage is supplied (pin 9) is 0.5A.
  For details on the DDC power supply, refer to "3.3.3 Concerning the DDC power supply."

3.2. Device input pin support

3.2.1. 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 3-2-1 LVDS device pin support table

Output pin	Data	Output pin	Data
RA0	R4	RC4	HSYNC
RA1	R5	RC5	VSYNC
RA2	R6	RC6	DISP
RA3	R7	RD0	R2
RA4	R8	RD1	R3
RA5	R9	RD2	G2
RA6	G4	RD3	G3
RB0	G5	RD4	B2
RB1	G6	RD5	B3
RB2	G7	RD6	-
RB3	G8	RE0	R0
RB4	G9	RE1	R1
RB5	B4	RE2	G0
RB6	B5	RE3	G1
RC0	B6	RE4	B0
RC1	B7	RE5	B1
RC2	B8	RE6	-
RC3	B9	-	-

3.3. IA-546 specifications

3.3.1. Specifications

Dot clock frequency	LVDS input	20 to 90MHz
	Analog output	20 to 90MHz
LVDS input		Compliant with DVI 1.0
Video signal level		700mV ±3%
Sync signal output level		More than 2V (75 ohms)
Analog output		R, G, B, HSYNC, VSYNC

3.3.2. Ratings

Supply voltage	DC5V
Power consumption	2.5W MAX
Dimensions	100(W)×100(H)×40(D)mm (excluding projections)
Weight	Approx. 0.5 kg
Operating temperature	5 to 40°C
Storage temperature	-10 to 60°C
Humidity	30 to 85%RH (no condensation)

3.3.3. Concerning the DDC power supply

The DVI output of the IA-546 provides 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.

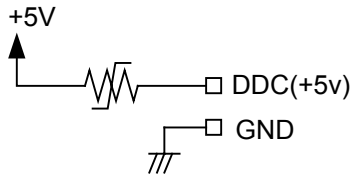

Fig. 3-3-1 DDC power output circuit

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-546 and connected device may malfunction.

3.3.4. G-on-Sync function

- A G-on-Sync function can be added by setting the DIP switch on the board to ON.
  The initial setting is OFF.
  This function takes effect only when the input external sync signals (HS, VS) are in the low active state.

Fig. 3-3-2 G-on-Sync switch (at OFF position)