

HD/SD-SDI to HDMI adaptor board
HD-3000
Manual

Table of Contents

Introduction	3
Connectors, Pin outs & Jumpers	5
Board Dimensions	10
Signal Support Mode Table	11
Specification	12
Warranty, Caution & Limitation of Liability, Trademarks	13
Contact details	14
Revision History	15

1. Introduction

The HD-3000 converts SD/HD-SDI (SD, HD and 3G) signal to HDMI for driving HDMI monitors. The HD-3000 provides re-clocked loop through outputs for “daisy chaining” multiple monitors or other equipments to the same HD-SDI source. It also supports embedded audio.

Fully compliant with the SMPTE 259M-C, SMPTE 292M, SMPTE 424M, 425M standards.

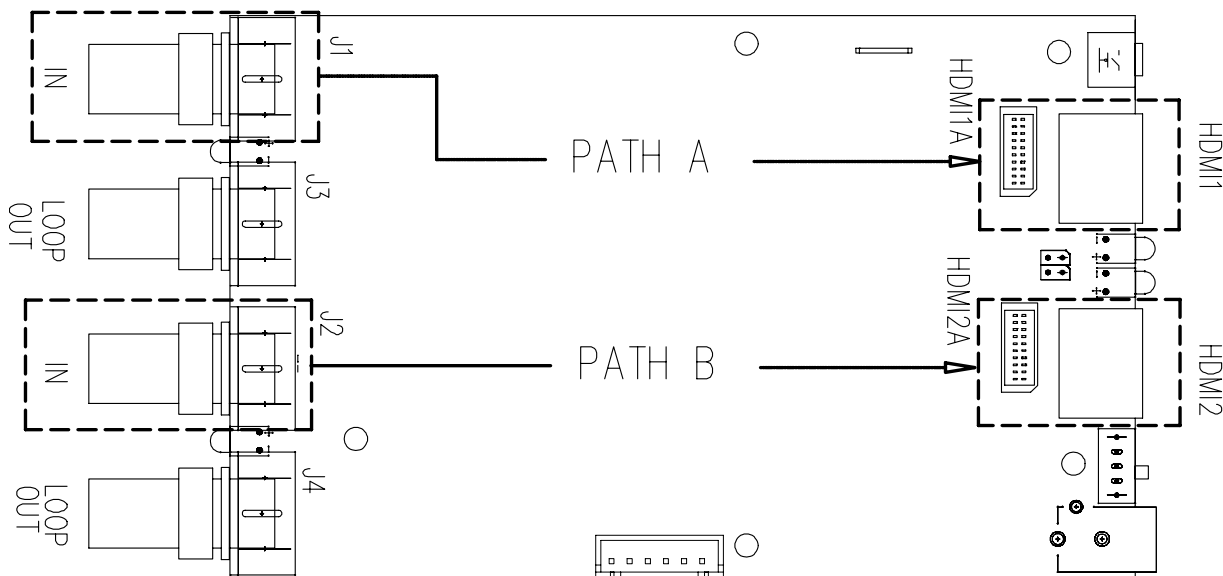
HD-3000 Key Features

a. Supports 1.5Gbits & 3Gbits bit rate input signal support.

The mode support is listed in page 11.

b. Dual channels input port supported.

HD-3000 supports Path A (HD-SDI input from J1 port convert to output HDMI at HDMI1/HDMI1A port) and Path B (HD-SDI input from J2 port convert to output HDMI at HDMI2/HDMI2A port). See Figure below :



c. HD-SDI re-clock loop through output.

J1 HD-SDI input and re-clock loop through to J3 HD-SDI output. J2 HD-SDI input and re-clock loop through to J4 HD-SDI output.

d. HDMI (v1.3) x 2 output port.

Two HDMI output ports are HDMI1/HDMI1A, HDMI2/HDMI2A.

e. Stereo embedded audio support

f. On-board power on/off switch – The power on/off switch is installed on SW1.

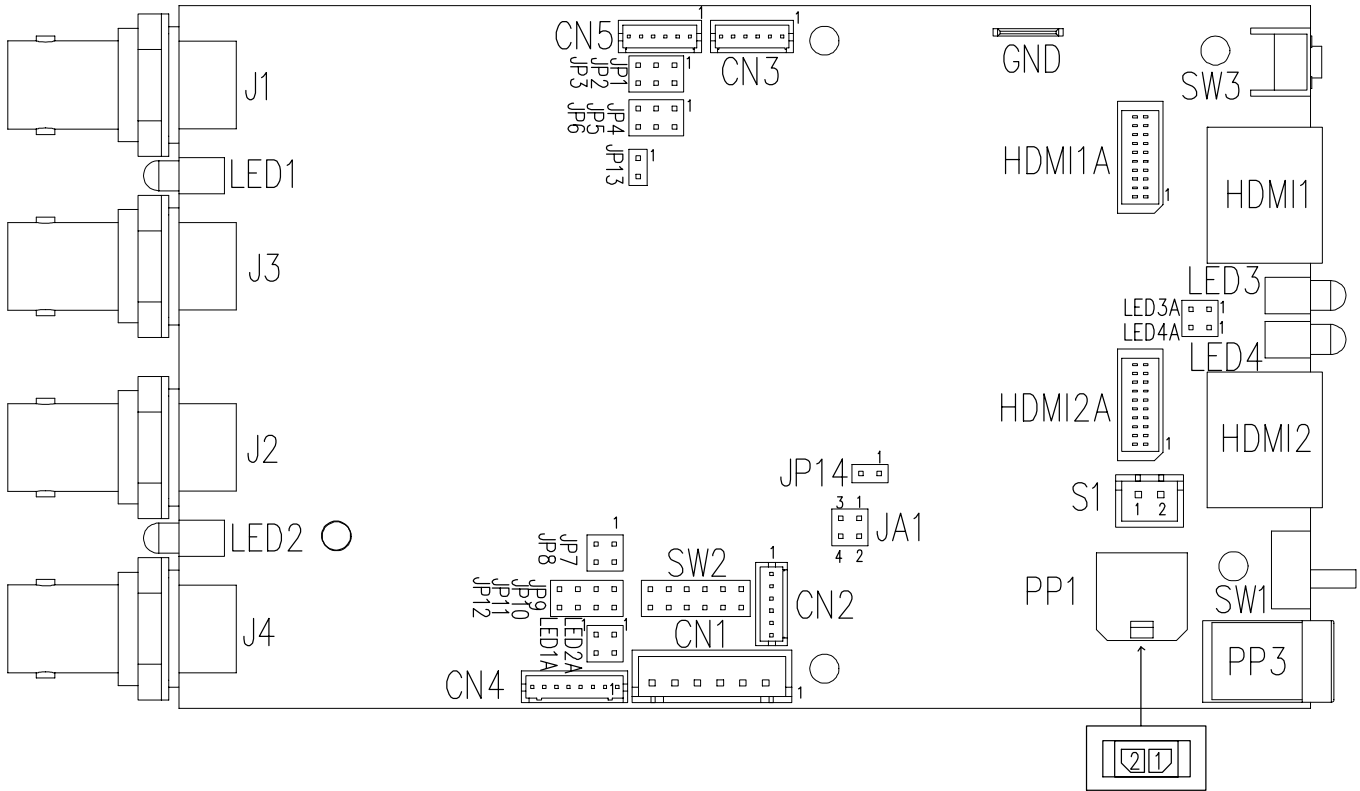
g. Status LEDs on board :

The definition of the LED1, LED2, LED3, LED4 are :

Ref	Description
LED1 / LED2	Green LED on : Signal detected Green LED Blinking : No signal detected
LED3 / LED 4	Green LED on : Signal output Green LED off : No signal output

2. CONNECTORS, PINOUTS & JUMPERS

The various connectors are:



Summary: Connectors

Ref	Description	Type / Use
J1	SD/HD-SDI 1 Input	BNC connector
J2	SD/HD-SDI 2 Input	BNC connector
J3	SD/HD-SDI 1 re-clock loop through output	BNC connector
J4	SD/HD-SDI 2 re-clock loop through output	BNC connector
CN1	RS-232 & I ² C control connector	JST 6-way, B6B-XH-A (Matching type : XHP-6)
CN2	Reserved for programming use	Reserved
CN3	Reserved for programming use	Reserved
CN4	External I/O connector	Hirose DF13-6P-1.25DSA (Matching type : Hirose DF13-8S-1.25C)
CN5	Reserved for programming use	Reserved
HDMI1	HDMI 1 Output	HDMI connector

Ref	Description	Type / Use
HDMI2	HDMI 2 Output	HDMI connector
HDMI1A	Alternate HDMI 1 Output	JST BM20B-SRDS (Matching type : JST SHDR-20V-S-B)
HDMI2A	Alternate HDMI 2 Output	JST BM20B-SRDS (Matching type : JST SHDR-20V-S-B)
PP1	Power Input (Alternate)	Molex 43650-0200 compatible (Matching connector type : Molex 43645-0200 compatible) (Matching power cable : P/N 426013800-3)
PP3	Power Input	DC power jack, 2.5mm contact pin diameter positive
S1	Alternate power on/off switch connector	JST B2B-XH-A (Matching type : XHP-2)
SW1	Power on/off slide switch	Slide switch
SW3	No function	Reserved

Summary: Jumper settings :

Ref	Purpose	Note
JA1	On board +5V logic power enable	1-2 & 3-4 closed, factory set, do not remove
LED1A	External LED connection	Refer to pin assignment in page 7
LED2A	External LED connection	Refer to pin assignment in page 7
LED3A	External LED connection	Refer to pin assignment in page 7
LED4A	External LED connection	Refer to pin assignment in page 7
JP1-12	No function	No function
JP13	Reserved for programming use	Reserved
JP14	Reserved for programming use	Reserved
SW2	No function	No function

Summary : PinOuts :

CN1 – RS-232 & I²C control : JST B6B-XH-A (Matching type : XHP-6)

PIN	SYMBOL	DESCRIPTION
1	SCLK	I2C_SCLK
2	SDATA	I2C_SDATA
3	VCC	+5V
4	TXD	RS-232 Tx data
5	GND	Ground
6	RXD	RS-232 Rx data

CN4 – External I/O connector : Hirose DF13-6P-1.25DSA (Matching type : Hirose DF13-8S-1.25C)

PIN	SYMBOL	DESCRIPTION
1	3V3	3.3V output
2	LED3	LED3 Anode
3	LED4	LED4 Anode
4	EXT_IP_0	Reserved
5	EXT_IP_1	Reserved
6	LED1	LED1 Anode
7	LED2	LED2 Anode
8	GND	LED Cathode

LED1A, LED2A, LED3A, LED4A – External LED connection

PIN	SYMBOL	DESCRIPTION
1	+	LED Anode
2	-	LED Cathode

HDMI1A – Alternate HDMI connector: JST BM20B-SRDS (Matching type : JST SHDR-20V-S-B)

PIN	SYMBOL	DESCRIPTION
1	GND	Ground
2	GND	Ground
3	RXC+	TMDS Data C+

Specifications subject to change without notice

PIN	SYMBOL	DESCRIPTION
4	RXC-	TMDS Data C-
5	RX0+	TMDS Data 0+
6	RX0-	TMDS Data 0-
7	RX1+	TMDS Data 1+
8	RX1-	TMDS Data 1-
9	RX2+	TMDS Data 2+
10	RX2-	TMDS Data 2-
11	GND	Ground
12	GND	Ground
13	MSTR2_SCL	Reserved
14	MSTR2_SDA	Reserved
15	DDC_5V	+5V power supply for DDC (optional)
16	HPD	Hot plug detection
17	DDC_SCL	DDC serial clock
18	DDC_SDA	DDC Data
19	VCC1	VCC 5V output
20	VCC2	VCC 5V output

HDMI2A – Alternate HDMI connector: JST BM20B-SRDS (Matching type : JST SHDR-20V-S-B)

PIN	SYMBOL	DESCRIPTION
1	GND	Ground
2	GND	Ground
3	RXC+	TMDS Data C+
4	RXC-	TMDS Data C-
5	RX0+	TMDS Data 0+
6	RX0-	TMDS Data 0-
7	RX1+	TMDS Data 1+
8	RX1-	TMDS Data 1-
9	RX2+	TMDS Data 2+

Specifications subject to change without notice

PIN	SYMBOL	DESCRIPTION
10	RX2-	TMDS Data 2-
11	GND	Ground
12	GND	Ground
13	MSTR2_SCL	Reserved
14	MSTR2_SDA	Reserved
15	DDC_5V	+5V power supply for DDC (optional)
16	HPD	Hot plug detection
17	DDC_SCL	DDC serial clock
18	DDC_SDA	DDC Data
19	VCC1	VCC 5V output
20	VCC2	VCC 5V output

S1 – Alternate power on/off switch connector (Matching type : XHP-2)

PIN	SYMBOL	DESCRIPTION
1	12V_IN	+12V INPUT
2	12V_OUT	+12V OUTPUT

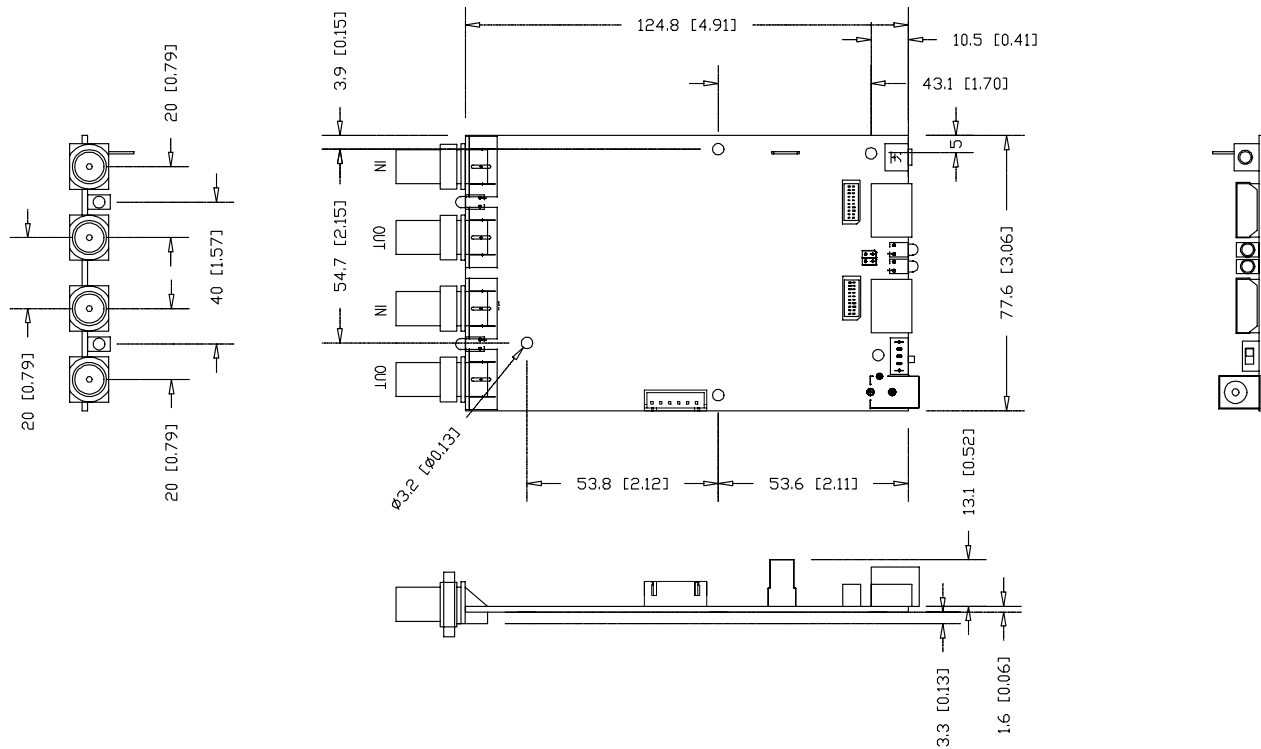
PP1 – Alternate 12VDC power supply

PIN	DESCRIPTION
1	+12VDC in
2	Ground

PP3 - 12VDC power supply

PIN	DESCRIPTION
1	+12VDC in
2	Ground

3. BOARD DIMENSIONS



Ready-made 3D Pro-E (SLDPRT) drawing files - Save time and effort for your system volumetric analysis design. Includes jpg file previews. Please go to download at <http://www.digitalview.com/accessories/hd-3000>

The maximum thickness of the adaptor board is 18mm (measured from bottom of PCB to top of components, excluding the BNC connectors). We recommend clearances of:

- 5mm from bottom of PCB - if mounting on a metal plate we also recommend a layer of suitable insulation material is added to the mounting plate surface.
- 10mm above the components
- 3~5mm around the edges

Any of the holes shown above can be used for mounting the PCB, they are 3.2mm in diameter.

CAUTION: Ensure adequate insulation is provided for all areas of the PCB with special attention to high voltage parts such as the inverter.

4. SIGNAL SUPPORT MODE TABLE

Mode
576i50 (PAL)
480i60 (NTSC)
720p60 (4:2:2)
720p59.94 (4:2:2)
720p50 (4:2:2)
720p30 (4:2:2)
720p29.97 (4:2:2)
720p25 (4:2:2)
1035i60 (4:2:2)
1035i59.94 (4:2:2)
1080p30 (4:2:2)
1080p29.97 (4:2:2)
1080p25 (4:2:2)
1080p24 (4:2:2)
1080p23.98 (4:2:2)
1080psf30 (4:2:2)
1080psf25 (4:2:2)
1080psf24 (4:2:2)
1080psf23.98 (4:2:2)
1080i60 (4:2:2)
1080i59.94 (4:2:2)
1080i50 (4:2:2)
1080p60 (4:2:2)
1080p50 (4:2:2)

5. Specification

Supported serial interface standard	SMPTE 292M, 259M-C, 424M, 425M (Level A)
Supported video mode	576i50 (PAL) 480i60 (NTSC) 720p60 (4:2:2) 720p59.94 (4:2:2) 720p50 (4:2:2) 720p30 (4:2:2) 720p29.97 (4:2:2) 720p25 (4:2:2) 1035i60 (4:2:2) 1035i59.94 (4:2:2) 1080p30 (4:2:2) 1080p29.97 (4:2:2) 1080p25 (4:2:2) 1080p24 (4:2:2) 1080p23.98 (4:2:2) 1080psf30 (4:2:2) 1080psf25 (4:2:2) 1080psf24 (4:2:2) 1080psf23.98 (4:2:2) 1080i60 (4:2:2) 1080i59.94 (4:2:2) 1080i50 (4:2:2) 1080p60 (4:2:2) 1080p50 (4:2:2)
Number of channel input port supported	2
HD-SDI re-clock loop through output	Yes
Output port	HDMI (v1.3) x 2
Embedded audio	Supported with Stereo
LEDs	Status LED (Green)
On board power on/off switch	Yes
Power requirement	Regulated DC 12V input (2.5mm center positive)
Power consumption	+12VDC ±5%, 5W
Environmental	Operating temperature : 0°C to 60°C Relative humidity : 5%-95% relative humidity (Non-condensing)
RoHS Compliant	Yes
Dimensions	124.8(W) x 77.6 (D) x 18(H) mm

6. WARRANTY

The products are warranted against defects in workmanship and material for a period of three (3) year from the date of purchase provided no modifications are made to it and it is operated under normal conditions and in compliance with the instruction manual.

The warranty does not apply to:

- Product that has been installed incorrectly, this specifically includes but is not limited to cases where electrical short circuit is caused.
- Product that has been altered or repaired except by the manufacturer (or with the manufacturer's consent).
- Product that has subjected to misuse, accidents, abuse, negligence or unusual stress whether physical or electrical.
- Ordinary wear and tear.

Except for the above express warranties, the manufacturer disclaims all warranties on products furnished hereunder, including all implied warranties of merchantability and fitness for a particular application or purpose. The stated express warranties are in lieu of all obligations or liabilities on the part of the manufacturer for damages, including but not limited to special, indirect consequential damages arising out of or in connection with the use of or performance of the products.

CAUTION

Whilst care has been taken to provide as much detail as possible for use of this product it cannot be relied upon as an exhaustive source of information. This product is for use by suitably qualified persons who understand the nature of the work they are doing and are able to take suitable precautions and design and produce a product that is safe and meets regulatory requirements.

LIMITATION OF LIABILITY

The manufacturer's liability for damages to customer or others resulting from the use of any product supplied hereunder shall in no event exceed the purchase price of said product.

TRADEMARKS

The following are trademarks of Digital View Ltd:

- Digital View
- HD-3000

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Revision History

Date	Rev No.	Page	Summary
30 Sept 2016	1.00	All	First Issue version.
7 July 2017	1.01	7	- Correct pin definition of CN1 pin 1 & 2
		14	- Update new Digital View HK office address
		15	- Add document revision history section