

**ez-MD+**

# HDMI/SDI Cross Converter with Audio Mux/Demux

Operation manual



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#### **HDCP Protection**

LUMANTEK products comply with HDCP, thus we will not allow any HDCP connection. If the input video source is protected by HDCP, then no video source will be displayed through LUMANTEK products.

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**LUMANTEK**



# 01. Introduction

Lumantek's ez-MD+ is a cross-converter supporting both SDI and HDMI as inputs and outputs. It has many functionalities other than converting like audio mux and demux through XLR, reference in (genlock), scaler, and audio delay control.

## Features

### ① Inputs & outputs

- Input : 1 x SD/HD/3G-SDI (BNC 75Ω)
- 1 x SD/HD/3G HDMI (Type A)
- 1 x Ref. In / Genlock B/B or TRI-Level (BNC 75Ω)

- Output : 1 x SD/HD/3G-SDI (BNC 75Ω)
- 1 x SD/HD/3G HDMI (Type A)

Audio in & out : 1 x D-SUB 9pin (female)

### ② Supports SD/HD/3G

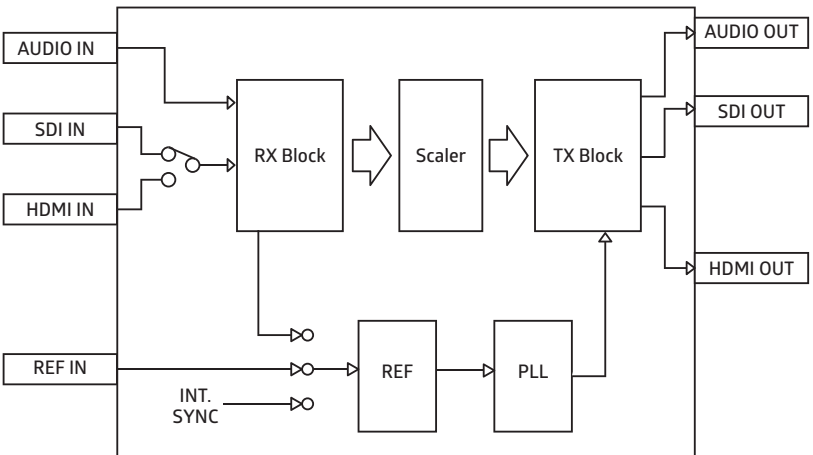
### ③ DIP Switch for settings changes

- Video output resolution and ratio, video format input (SDI or HDMI)
- Audio (internal or external), sync mode (free running, input lock, Genlock (B.B or TRI-Level)
- Audio Gain(0 or -10dB)

### ④ ROTARY Switch : Audio Delay Control (10 Step) x1

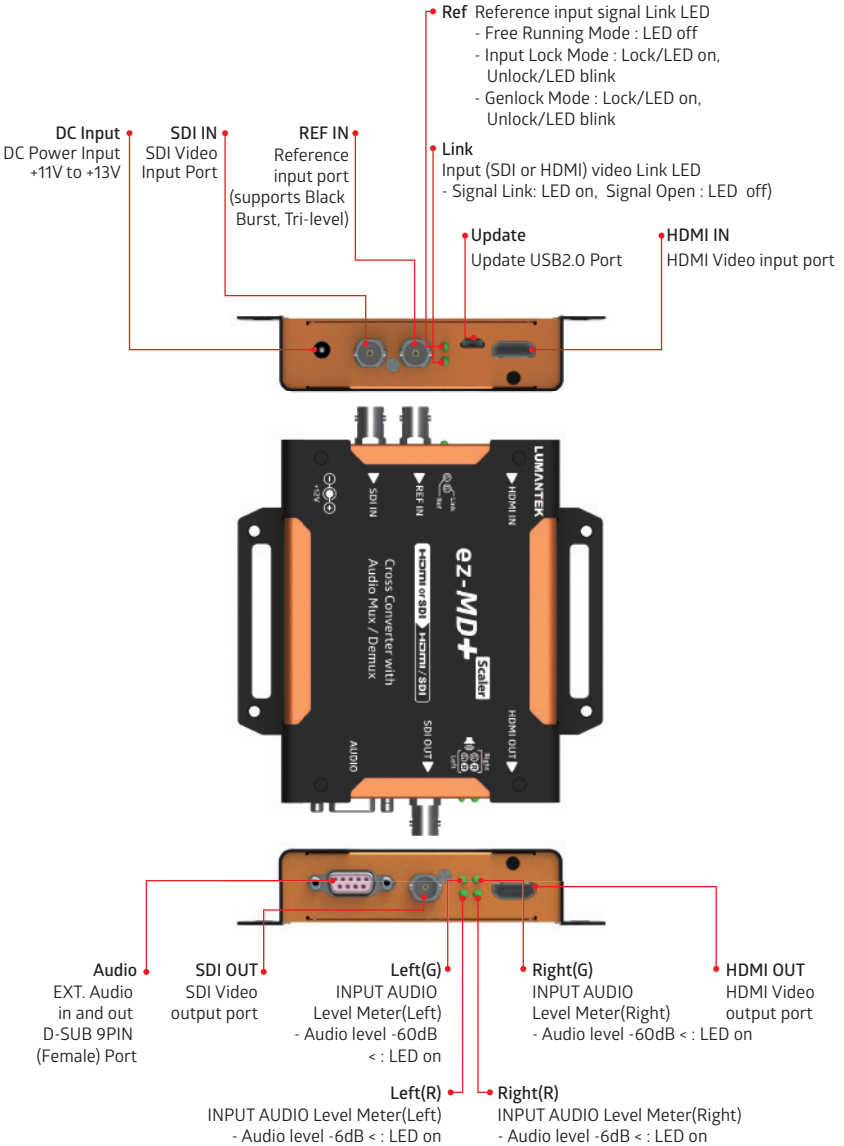
### ⑤ LED Display : Link (GREEN x1), Ref (GREEN x1), Audio Level Meter Left (GREEN x1, RED x1), Audio Level Meter Right (GREEN x1, RED x1)

## Diagram



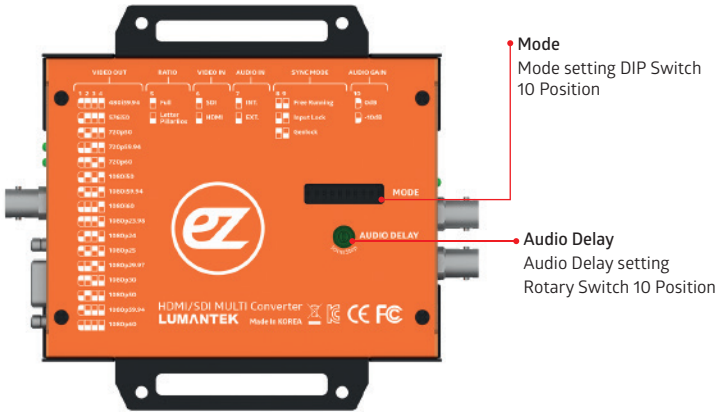
## 02. Interface

### a. Specifications [Top]



















## 02. Interface

### a. Specifications [Bottom]



# 02. Interface

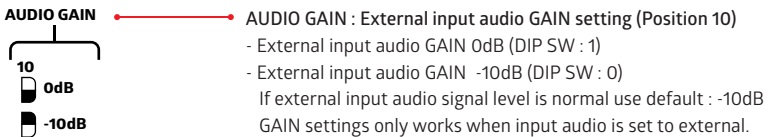
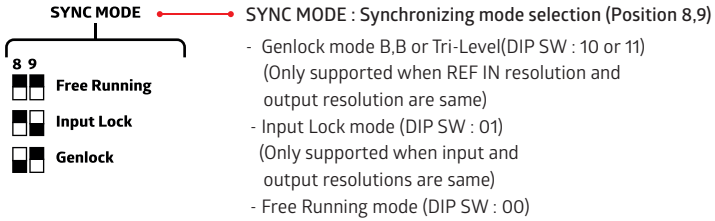
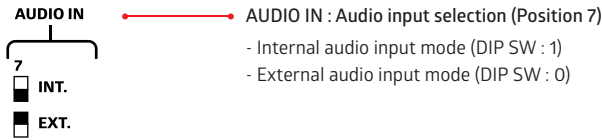
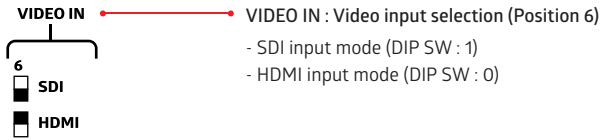
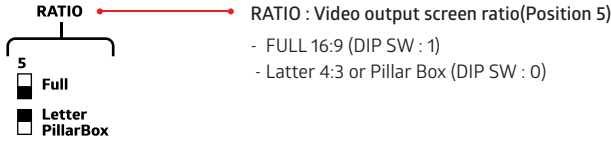
## b. MODE Settings

| VIDEO OUT   |            | VIDEO OUT : Video output resolution (Position 1, 2, 3, 4) |
|---|------------|---|
|  | 480i59.94  | - 720x480i@59.94 (DIP SW : 1111)                          |
|  | 576i50     | - 720x576i@50 (DIP SW : 0111)                             |
|  | 720p50     | - 1280x720p@50 (DIP SW : 1011)                            |
|  | 720p59.94  | - 1280x720p@59.94 (DIP SW : 0011)                         |
|  | 720p60     | - 1280x720p@60 (DIP SW : 1101)                            |
|  | 1080i50    | - 1920x1080i@50 (DIP SW : 0101)                           |
|  | 1080i59.94 | - 1920x1080i@59.94 (DIP SW : 1001)                        |
|  | 1080i60    | - 1920x1080i@60 (DIP SW : 0001)                           |
|  | 1080p23.98 | - 1920x1080p@23.98 (DIP SW : 1110)                        |
|  | 1080p24    | - 1920x1080p@24 (DIP SW : 0110)                           |
|  | 1080p25    | - 1920x1080p@25 (DIP SW : 1010)                           |
|  | 1080p29.97 | - 1920x1080p@29.97 (DIP SW : 0010)                        |
|  | 1080p30    | - 1920x1080p@30 (DIP SW : 1100)                           |
|  | 1080p50    | - 1920x1080p@50 (DIP SW : 0100)                           |
|  | 1080p59.94 | - 1920x1080p@59.94 (DIP SW : 1000)                        |
|  | 1080p60    | - 1920x1080p@60 (DIP SW : 0000)                           |



# 02. Interface

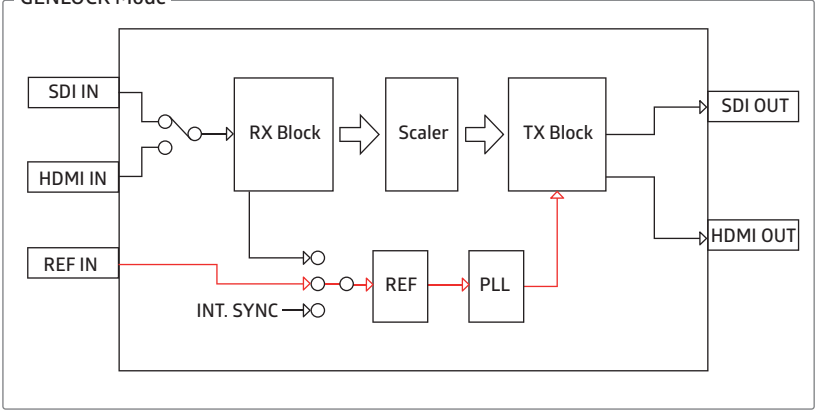
## b. MODE Settings



## 02. Interface

### b. MODE Settings

#### GENLOCK Mode



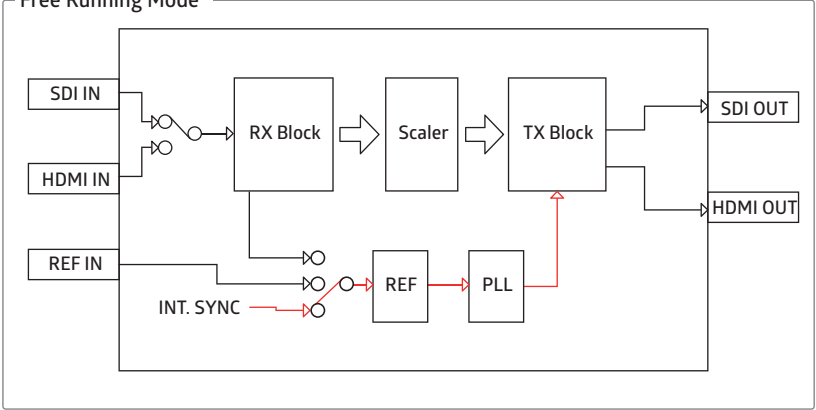
#### Compatible REF Input signals

| Output resolution | REF IN resolution                       |
|-------------------|---|
| 720x480i59.94     | NTSC                                    |
| 720x576i50        | PAL                                     |
| 1280x720p50       | PAL, 720p50, 1080p50                    |
| 1280x720p59.94    | NTSC, 720p59.94, 1080p59                |
| 1280x720p60       | not supported                           |
| 1920x1080i50      | PAL, 1080i50                            |
| 1920x1080i59.94   | NTSC, 1080i59.94                        |
| 1920x1080i60      | not supported                           |
| 1920x1080p23.98   | 1080p23.98                              |
| 1920x1080p24      | 1080p24                                 |
| 1920x1080p25      | PAL, 1080i50, 1080p25                   |
| 1920x1080p29.97   | NTSC, 1080i59.94, 1080p29.97            |
| 1920x1080p30      | not supported                           |
| 1920x1080p50      | PAL, 720p50, 1080i50, 1080p50           |
| 1920x1080p59.94   | NTSC, 720p59.94, 1080i59.94, 1080p59.94 |
| 1920x1080p60      | not supported                           |

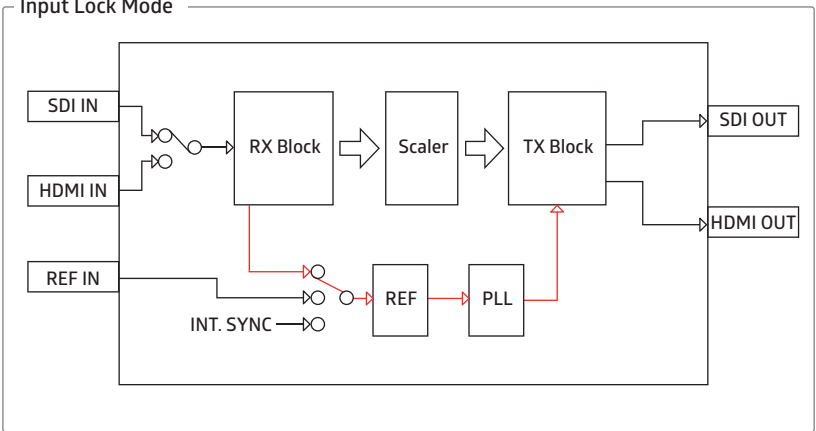
# 02. Interface

## b. MODE Settings

### Free Running Mode

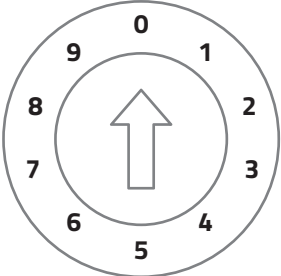


### Input Lock Mode



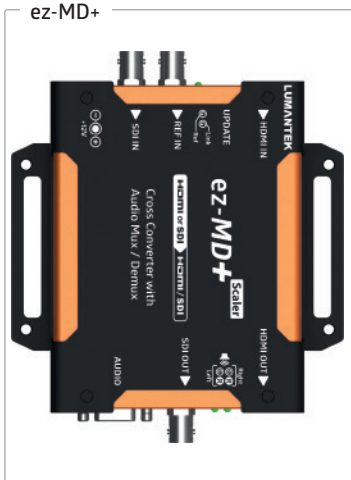
## 02. Interface

### c. AUDIO DELAY Settings

| Rotary Switch   | AUDIO DELAY min. 50ms Step   |
|---|--|
|  <p>A diagram of a rotary switch with ten positions, numbered 0 through 9. The positions are arranged in a circle: 0 at the top, 1 at the top-right, 2 at the right, 3 at the bottom-right, 4 at the bottom, 5 at the bottom-left, 6 at the left, 7 at the top-left, 8 at the left, and 9 at the top-left. A large upward-pointing arrow is centered in the middle of the switch, pointing towards position 0.</p> | <ul style="list-style-type: none"><li>• 0ms Delay (Position : 0)</li><li>• 50ms Delay (Position : 1)</li><li>• 100ms Delay (Position : 2)</li><li>• 150ms Delay (Position : 3)</li><li>• 200ms Delay (Position : 4)</li><li>• 250ms Delay (Position : 5)</li><li>• 300ms Delay (Position : 6)</li><li>• 350ms Delay (Position : 7)</li><li>• 400ms Delay (Position : 8)</li><li>• 450ms Delay (Position : 9)</li></ul> |

### 03. Product Configuration

ez-MD+



AC to DC adapter



Adapter specifications

AC in : AC100 to 240V,50/60Hz

DC out : DC12V, 1A

External audio gender cable



Cable specifications

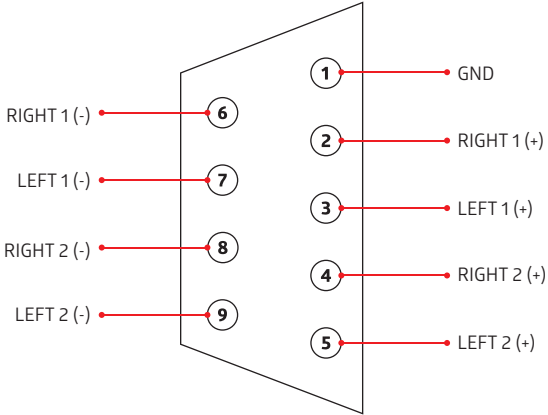
d' sub 9PIN (Male) x 1

Audio Input : XLR(Female) x 2

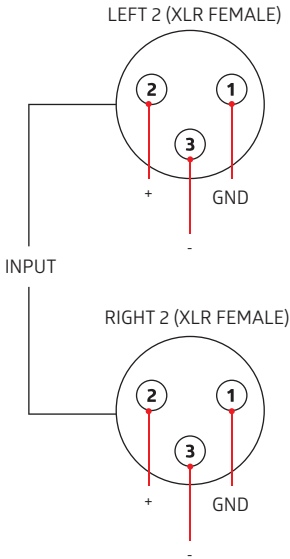
Audio Output : XLR(Male) x 2

### 03. Product Configuration

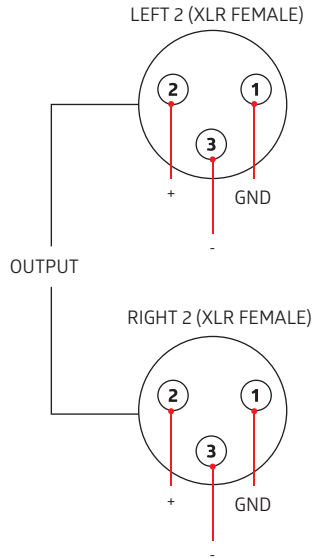
d' sub 9PIN



Audio Input : XLR(Female) x 2



Audio Output : XLR(Male) x 2



## 04. Technical Specifications

### ez-MD+

#### Data Input

SDI Video Input: SD/HD/3G-SDI (BNC 75Ω) x1  
HDMI Video Input: SD/HD/3G (HDMI Type A) x1  
Reference Input: B.B , TRI (BNC 75Ω) x1  
Audio Input: D-SUB 9PIN (Female) x1  
Video Formats  
- 720x480i@59.94/60  
- 720x576i@50  
- 1280x720p@50/59.94/60  
- 1920x1080i@50/59.94/60  
- 1920x1080p@23.98/24/25/29.97/30  
- 1920x1080p@50/59.94/60

#### Data Output

SDI Video Output: SD/HD/3G-SDI (BNC 75Ω) x1  
HDMI Video Output: SD/HD/3G (HDMI Type A) x1  
Audio Output : D-SUB 9PIN (Female) x1

#### Video Formats

- 720x480i@59.94 (DIP SW : 1111)  
- 720x576i@50 (DIP SW : 0111)  
- 1280x720p@50 (DIP SW : 1011)  
- 1280x720p@59.94 (DIP SW : 0011)  
- 1280x720p@60 (DIP SW : 1101)  
- 1920x1080i@50 (DIP SW : 0101)  
- 1920x1080i@59.94 (DIP SW : 1001)  
- 1920x1080i@60 (DIP SW : 0001)  
- 1920x1080p@23.98 (DIP SW : 1110)  
- 1920x1080p@24 (DIP SW : 0110)  
- 1920x1080p@25 (DIP SW : 1010)  
- 1920x1080p@29.97 (DIP SW : 0010)  
- 1920x1080p@30 (DIP SW : 1100)  
- 1920x1080p@50 (DIP SW : 0100)  
- 1920x1080p@59.94 (DIP SW : 1000)  
- 1920x1080p@60 (DIP SW : 0000)

#### Connections

Power : DC Power Input (DC Jack) x1  
Update : Debug (Micro-USB) x1  
DIP Switch : (10 Pole) x1  
Video Output Resolution, Video Output Ratio, Video Input(SDI or HDMI),Audio(INT or EXT), Sync Mode : Free Running, Input lock, Genlock (B.B or TRI-Level), Audio Gain(0 or -10dB)  
ROTARY Switch : (10 Step) x1  
Audio Delay Control (50ms Step)

#### Display

Link (GREEN x1) : HDMI or SDI Input Video Detect  
Ref (GREEN x1) : REF Input Signal Detect  
Left (GREEN x1, RED x1) : INPUT AUDIO Level Meter(Left)  
Right (GREEN x1, RED x1) : INPUT AUDIO Level Meter(Right)

#### Electrical

Power Input: DC +11V to +13V  
Power Consumption: 8W(max.)  
Operation Temperature: 0~45°C

#### Physical

Dimension: 130 (W) x 100.4 (H) x 26.9 (D) (mm)  
Weight: 0.4 kg (0.88 lb)

EASY FOR EVERYONE.

## ez-Pro VS4

FULL HD SWITCHER

- 4 Channel video switcher
- Internal scalers  
(output to any HD resolution up to 1080p)
- Multiview and Program screens
- PIP
- 2 x Logo
- Luma/Chroma
- 18 Transition effects!



SAVE YOUR LIVE EVENT!

## ez-SHV+

SDI TO HDMI CONVERTER  
WITH DISPLAY AND SCALER

- Display Monitoring
- Eye Pattern
- Scaling
- Cable Length
- Audio Level Meter Bar

