# TL4K1161

# AIVION®
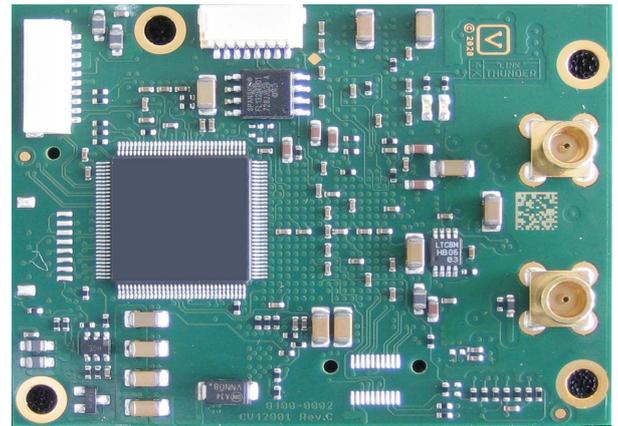
Dual Link 3 Gbps UHD-SDI Transmitter
Dual Out 3/1.5 Gbps FHD-SDI Transmitter

## Features

+ **Video output up to Ultra High Definition**

+ **Resolution up to 3840x2160p @ 30fps**

+ **Seamless connection to Sony FCB-ER8550, FCB-ER8530, FCB-ER8300 and FCB-ES8230 4K camera blocks**

+ **Seamless connection to new Sony FCB-EW9500H camera block**

+ **Dual Link 3G-SDI output of UHD formats**

+ **3G-SDI output of FHD formats**

+ **1.5G-SDI output of HD formats**

+ **Automatic format detection**

+ **Native signal processing for highest image quality**

+ **MCX 75 Ohm straight coaxial connectors**

+ **RS232 and 3.3V TTL level serial camera control interface**

+ **Supply voltage 9V to 12V DC regulated**

+ **RoHS and UL/UR compliant**

## Applications

+ **4K UHD and full HD integrated cameras based on Sony FCB-ER8550, FCB-ER8530, FCB-ER8300, FCB-ES8230 and FCB-EW9500H camera blocks**

+ **Industrial, medical, security, law enforcement, video production**

## General Description

TL4K1161 is a small form factor serial digital video (SDI) transmitter. Camera video input signals are equalized, processed and output over coaxial connectors. Dual Link 3G-SDI output is compliant to SMPTE ST425-3, 2si mapping, FHD output is compliant to SMPTE ST425-1 level A standards.

Camera control is accomplished by a transparent full duplex communication channel. Physical interface between camera and camera controller / PC is based on RS232 or 3.3V TTL level. TLCK-B-0200 cable kit is available as accessory.

## Coaxial Connector Options

TL4K1161-M-ST, Straight MCX (standard version)
TL4K1161-M-RA, Right angle MCX
TL4K1161-D-ST, Straight DIN7A
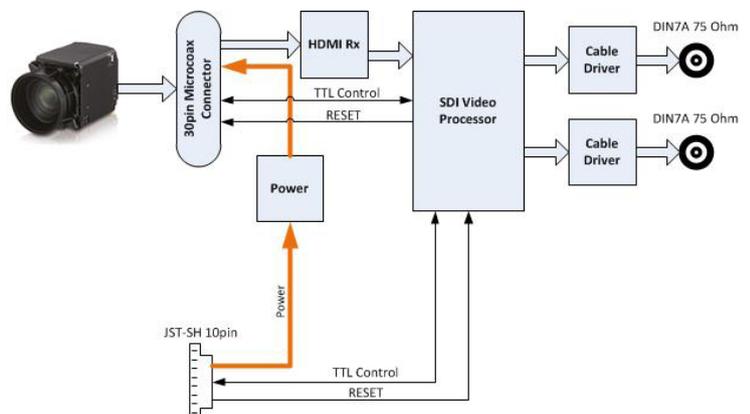TL4K1161-D-RA, Right angle DIN7A
TL4K1161-H-ST, Straight HD-BNC
TL4K1161-H-RA, Right angle HD-BNC

## Quick Specification

• FCB-ER/ES/EW series interface on 30pin microcoax connector
• Up to 4K 3840x2160@30fps SDI video output
• Supply voltage 9V to 12V DC
• Operating ambient temperature range -5°C to +60°C
• Operating humidity range 20% to 80%
• Power consumption 3.72W with 12V DC supply voltage
• Power consumption 6.72W with 12V DC supply voltage incl. FCB-ER8530 camera block
• Board size (L x W) 46mm x 60mm
• Wire/cable kit for camera and external interconnect
• RoHS compliant (2002/05/EG and 2011/65/EU)
• UL/UR compliant
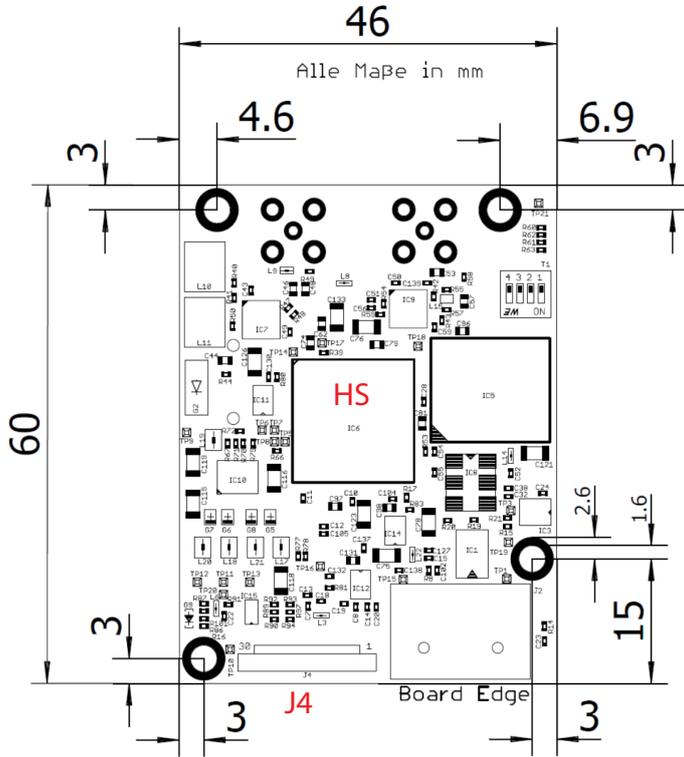• 3D CAD model (step format) available on request

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## Board Mechanical (top side)



46
Alle Maße in mm
4.6
6.9
3
3
60
2.6
1.6
15
3
3
3
J4
Board Edge

+ Max. component height top side = 4.0mm

+ Max. component height bottom side = 3.2mm (except J7/J8)

+ PCB thickness 1.55mm

+ Mounting holes drill diameter 3,2mm, land diameter 5,2mm

NOTE:

If ambient temperature is higher than 45°C (113°F), a heat sink should be applied to TL4K1161. Heat sink has to be mounted depending on board installation. It should contact to top or bottom side components marked with HS.

## Onboard Connectors

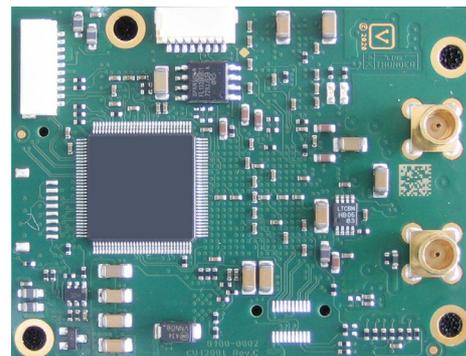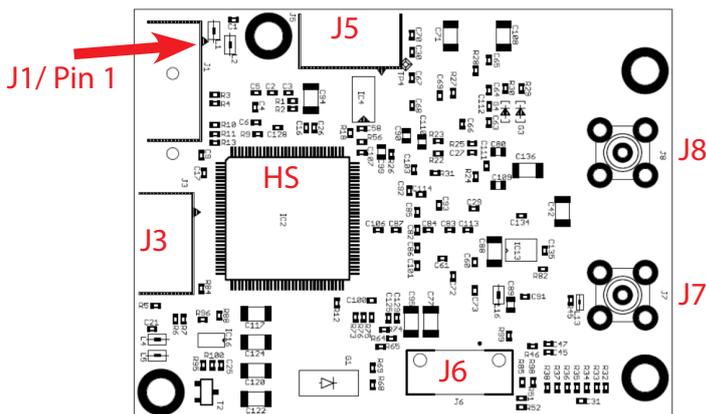| J1: | (JST SM10B-SRSS-TB) |
|---|---|
| 1 | DC Supply voltage input |
| 2 | DC Supply voltage input |
| 3 | GND (0V) |
| 4 | GND (0V) |
| 5 | Reset* |
| 6 | GND |
| 7 | TXD_TTL (serial IF transmit 3.3V) |
| 8 | RXD_TTL (serial IF receive 3.3V) |
| 9 | RXD_232 (serial IF receive RS232 level) |
| 10 | TXD_232 (serial IF transmit RS232 level) |

*Pull pin 5 to GND(0V) for 1ms or longer for reset, leave open for normal operation.

| J3: | Not assembled |
|---|---|
| J4: | HDMI Input (KEL USL00-30L-A) |

30wire microcoax connector for FCB-ER8xxx and FCB-EW9500H. Use 30wire micro coaxial cable supplied with cable kit.

| J5: | Do not connect (JTAG prog. interface). |
|---|---|
| J6: | Not assembled |

**SDI output connectors** (Samtec MCX7-J-P-H-ST-TH1):

**J7: Link 1 of DL-3G SDI output or 3G/1.5G-SDI FHD/HD output**

**J8: Link 2 of DL-3G SDI output or 3G/1.5G-SDI FHD/HD output**

## Board Bottom Side



J1/ Pin 1
J5
HS
J3
J8
J7
J6



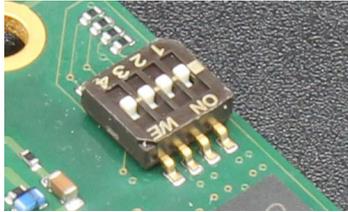| Internet: | www.aivion.com |
|---|---|
| E-Mail: | sales@aivion.com |

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Data Sheet
PCB Rev.C

## Board Config Switch

| Switch# | OFF | ON |
|---------|-----|-----|
| 1 | RS232 based camera control | 3.3V TTL based camera control |
| 2 | Keep OFF | Reserved |
| 3 | Keep OFF | Reserved |
| 4 | Keep OFF | Reserved |



## FCB-EW9500H Support

**TL4K1161 supports the following video monitoring modes:**

- UHD (4MP active) output 2160/p30, 2160p29.97, 2160p25
- FHD output 1080p60, 1080p59.94, 1080p50
- HD output 1080i60 1080i59.94, 1080i50, 1080p30, 1080p29.97, 1080p25, 720p60 720p59.94, 720p50

Note:
FCB-EW9500H outputs 4MP images in UHD formats having a black frame around the active image area. Please refer to Sony FCB-EW9500H technical documentation for details.



Sony FCB-EW9500H

## Power and Environment

**POWER INPUT:**

9V to 12V DC (12.5V DC max.) regulated supply input voltage range

**CHARACTERISTICS:**

$P_D$ = 6.72W typ.  (FCB-ER8530 lens steady +TL4K1161)
$P_{TL4K1161}$ = 3.72W (typ.)
(12V DC supply, 3840x2160@25fps, $T_A$ = 25°C, Humididty = 40%)

**OPERATING AND STORAGE CONDITIONS:**

Ambient temperature (min/max) -5°C/60°C = 23°F/140°F

Humidity: 20% - 80%

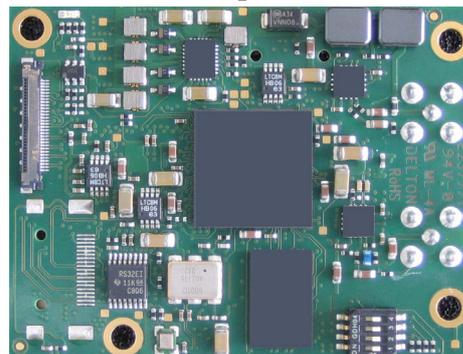TL4K1161 is RoHS compliant (2002/05/EG and 2011/65/EU)

## Accessories

**TLCK-B-0200 Cable Kit:**

**Kit content:**

- 1pcs USL20-30SS-020.0-C KEL USL Cable Harness 30p 20cm 1:n

- 1pcs JST SH cable 10p 15cm flying leads second end 4mm stripped

## Board Top Side