TL8651

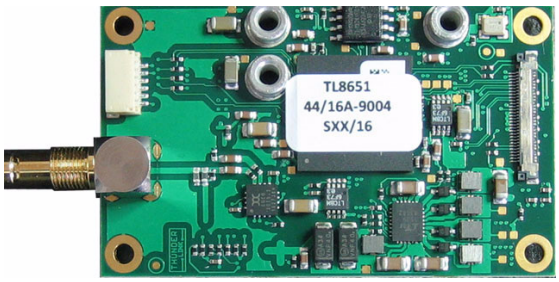
3G/HD-SDI Output Video Transceiver

Thunder Link is a family of small form factor modules for formatting and converting generic digital video streams to standard compliant formats. Different interface standards are supported from the transmitter side including DVI/HDMI, 3G-SDI and HD-SDI. Supported physical media are copper and fibre cables.

These modules connect to the digital video interface of Tamron block cameras and support several progressive and interlace HDTV formats. TL8651 outputs serial digital video (SDI) up to 1080p60.

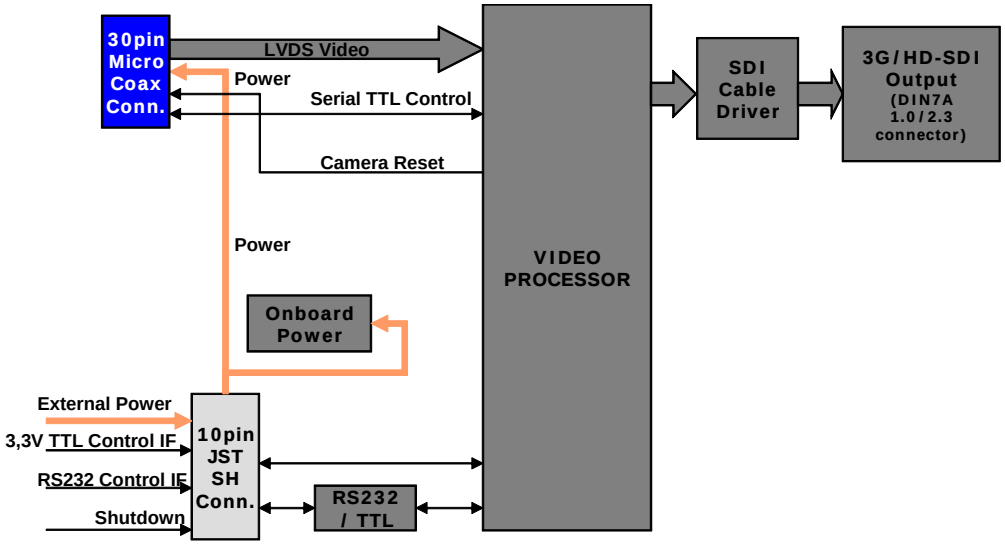
TL8651 Features

- + Supports Tamron MP1010M-VC ultra compact camera module
- + Digital 4channel LVDS video input from camera
- + 1080p output at 60Hz, 50Hz, 30Hz and 25Hz
- + 720p output at 60Hz and 50Hz
- + 1080i output at 60Hz and 50Hz
- + Full automatic video input standard detection
- + 3G/HD-SDI output
- + SDI output compliant to SMPTE ST424M Level A and ST292M
- + Native digital signal processing chain for best image quality
- + RS232 and TTL level serial control interface
- + Supply voltage 12V DC regulated
- + Board Side Mount



3G/HD-SDI Output 1080p60 1080p50

Block Diagram TL8651



Order Codes:

TL8651-D-RA

Right angle DIN7A connector (-D-RA)

Connector Options (MOQs apply)

-D-ST Straight DIN7A
-H-ST Straight HDBNC
-H-RA Right angle HDBNC
-M-ST Straight MCX
-M-RA Right angle MCX

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Specification Camera Interface

INPUTS:

DATA	4 CH. LVDS digital video (from camera)
CLOCK	LVDS (from camera)
CONTROL Rx	3.3V TTL serial control interface

OUTPUTS:

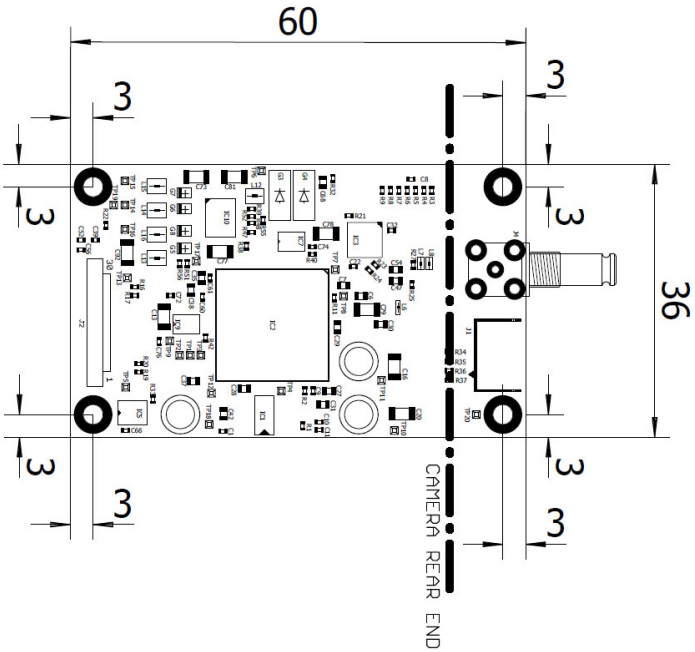
CONTROL Tx	3.3V TTL serial control interface
RESET	3.3V TTL, active low

Power and Environment

POWER INPUT:
9.5V to 12V DC regulated (12.5V DC absolute maximum)
Power consumption (MP1010M-VC + TL8651) 4.5W (cam motors inactive)
Power consumption TL8651: 1.5W, 125mA @ 12V DC (typ.)
Power consumption value conditions:
Power 12V DC, video mode 1080p60
Ambient temperature +25°C/77°F
Humidity 30%

OPERATING CONDITIONS:
Ambient temperature (min/max): -5°C/+60°C = 23°F/140°F
Humidity: 20%-80%
STORAGE CONDITIONS:
Temperature (min/max): -20°C/+60°C = -4°F/140°F
Humidity: 20%-80%

Board Mechanical



All dimensions in mm.

Maximum top component height = 3.0mm (without coaxial connector)

Maximum bottom component height = 3.0mm

PCB thickness = 1.56mm

Outer mounting hole drill diameter 2.6mm
Outer mounting hole land diameter 5.2mm

SAFETY NOTES:

All digital inputs are specified for maximum voltages of 3.3V (+5%).

Pin Assignment of I/O Connectors

J1 JST BM06B-SRSS-TB

Do not connect

J2 KEL USL00-30L-A

Camera IF, use supplied 30wire micro coaxial cable only

J3 JST BM10B-SRSS-TB

Power and RS232/TTL Control IF

1 DC IN
2 DC IN
3 GND
4 GND
5 Reset / Shut Down, pull to GND to reset/shut down TL7650 and camera*
6 GND
7 TXD_TTL (serial IF transmit, 3.3V) and/or temperature alert output
8 RXD_TTL (serial IF receive, 3.3V)
9 RXD_232 (serial IF receive, RS232 level)
10 TXD_232 (serial IF transmit, RS232 level)

*for reset, pull to GND for one second or longer

Note: Connect RS232 or TTL serial interface, not both

J4 75 ohms coaxial jack

Default type: CEI C-SX113 (DIN7A / 1.0/2.3 coax system)

3G/HD-SDI output

Onboard Mode Switches

Switch	OFF (default)	ON
1 - factory use	Keep OFF	--
2 - factory use	Keep OFF	--
3 - factory use	Keep OFF	--
4 - factory use	Keep OFF	--

Table 1: Onboard Switch Functions

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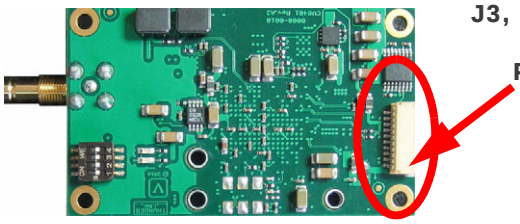
Connection Diagram

TL8651 top side

Micro Coaxial Cable

MP1010M-VC Camera (sold separately)

TL8651 bottom side

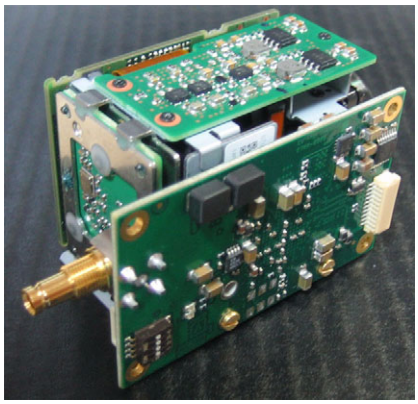


J3, 12V DC Power input, Reset and RS232/TTL serial interface

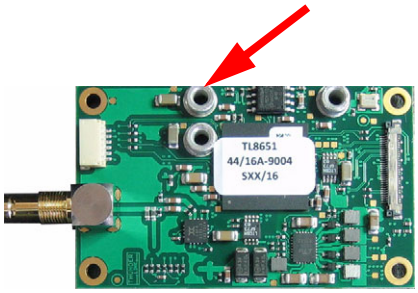
Pin 1 location

TL8651 Side Mount on MP1010M-VC Camera

TL8651 can be directly mounted on side of camera (fitting screws included). PCB has three metal spacers assembled.



Metal spacer for side mount



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Reset Operation

When applying power to TL8651, the camera is also automatically powered. During power up all functions on the video transceiver board, are reset and initialized.

During operation a manual reset can be applied by pulling pin no. 5 of connector J1 to 0V (GND). This resets also the camera.

Camera Control

Camera control can be done by connecting a PC or CCU via RS232 or serial 3.3V TTL interface to TL8651. The interface is passed through to the camera that all VISCA protocol based software can be used.

Cable Kit Contents

TLCK-B cable kit:

External connecting cables:

1 pcs. - 10pin flying leads cable for power and control (RS232/TTL), lead length = 15cm / 5.9inch

Camera connecting cables:

1 pcs. - 30pin KEL USL type micro coaxial cable, connector on both sides, length = 20cm / 7.8inch

SAFETY NOTES: All digital inputs are specified for maximum voltages of 3.3V (+5%).