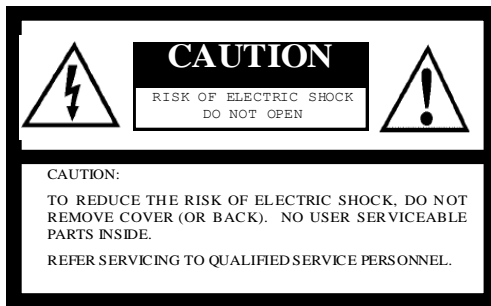




**STC-HD133DV (Cased Type)**  
**STC-HD133DV-B (Board Type)**  
**Product Specification**

**16:9 Format 720p Color Camera**

## Safety Precautions



For U.S.A.

**Warning:**

This equipment generates and uses radio frequency energy and if not installed and used properly, i.e., in strict accordance with the instruction manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

For Canada

**Warning:**

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

**WARNING:**

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

## Product Precautions

- Handle the camera with care. Do not abuse the camera. Avoid striking or shaking it. Improper handling or storage could damage the camera.
- Do not pull or damage the camera cable.
- During camera use, do not wrap the unit in any material. This will cause the internal temperature of the unit to increase.
- Do not expose the camera to moisture, or do not try to operate it in wet areas.
- Do not operate the camera beyond its temperature, humidity and power source ratings.
- While the camera is not being used, keep the lens or lens cap on the camera to prevent dust or contamination from getting in the CCD or filter area and scratching or damaging this area.
- Do not keep the camera under the following conditions:
  - In wet, moist, and high humidity areas
  - Under hot direct sunlight
  - In high temperature areas
  - Near an object that releases a strong magnetic or electric field
  - Areas with strong vibrations
- Use a soft cloth to clean the camera. Use pressured air spray to clean the surface of the glass. DO not scratch the surface of the glass.

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## I. Specifications

### A. Electronic Specifications / Mechanical Specifications / Environmental Specifications

Product		STC-HD133DV (Case Type)	STC-HD133DV-B (Board Type)	
Electronic Specifications	Imager	1/3" Interline SXGA CCD: ICX445AQA		
	CCD Effective Picture Elements	1296 (H) x 966 (V)		
	HD Active Picture Elements	1280 (H) x 720 (V)		
	Chip Size	6.26 (H) x 5.01 (V) mm		
	Cell Size	3.75 (H) x 3.75 (V) $\mu$ m		
	Minimum Scene Illumination	5 Lux at F1.2 at 50% IRE, AGC ON and 1/60 second shutter speed with IR cut filter		
	Sync System	Internal		
	Video Output	DVI 1.0 compliant RGB, 1280 (H) x 720 (V), 60 Hz / 59.94 Hz / 50 Hz		
	Camera Functions	ALC	Can be configured via the UART communication With optical iris, auto electronic shutter and AGC	
		Shutter Speed	Adjustable shutter speed via the UART communication Up to 1/100,000 seconds at 60 Hz or up to 1/83,947 seconds at 50Hz	
		Gain	AGC or Fixed gain, selectable via the UART communication Gain range: 0 to 18.3 dB	
		Digital Gain	Up to 5.9866 dB	
		Gamma	1.0, 0.9, 0.8, 0.7, 0.6, 0.5, 0.45, 0.3 or manual gamma Gamma selectable via the UART communication	
		White Balance	Auto white balance / manual white balance / push-to-set white balance White balance selectable via the UART communication	
		Mirror Image	Normal Image and Horizontal Flip are selectable via UART communication	
		DSP Presets	28 EEPROM-loadable picture modes (DSP profiles); Pseudo colors are selectable w/in the picture modes via the UART communication	
		Line Generator	Both horizontal and vertical with all available colors Thickness adjustable via the UART communication	
		Shadow Mask Generator	Horizontal and vertical w/ shading level adjustment via the UART communication	
		Communication	UART communication via 3.5 $\phi$ stereo jack	
		Character Generator	Built-in character generation function via the UART communication	
Pixel Blemish Collection	Up to 64 pixel blemish static collection			
Power	Input Voltage	9Vdc to 15Vdc (Typically: 12Vdc)		
	Consumption	<3.0 W		
Mechanical Specifications	Dimensions	40 (W) x 40 (H) x 45.8 (D) mm	35 (W) x 35 (H) x 46.7 (D) mm	
	Optical Filter	Includes IR cut filter		
	Interface Connector	Video Output	HDMI connector	
		Power Input	12V power jack	
		External Control	-	SM06B-SRSS (JST) 6-pin connector header for connectivity of up to 9 external switch; Functions are listed under "II-B: The Camera Control Functions"
		Communication	3.5 $\phi$ stereo jack	
	Button	One push button Initial press button function: push-to-set white balance Initial hold button function: Auto white balance (Function is selectable via the UART communication)		
	Weight	Approximately 120 g	Approximately 50 g	
Environmental Specifications	Temperature	Operational	0°C to 45°C	TBD
		Storage	-30 to 65°C	
	RoHS	RoHS Compliant		

## II. Camera Operations

### A. Shutter Settings

#### 1. 720p – 60Hz, 720P-59.94Hz Operations

Value	High Speed Shutter	
0	16.7 ms	1/60 s
64	8.33 ms	1/120 s
128	4.17 ms	1/240 s
192	2.08 ms	1/480 s
256	1.04 ms	1/960 s
320	520.8 us	1/1,920 s
384	260.4 us	1/3,840 s
448	130.2 us	1/7,680 s
512	65.1 us	1/15,360 s
576	32.6 us	1/30,720 s
640	16.3 us	1/61,440 s
690	10.0 us	1/100,000 s

#### 2. 720p – 50Hz Operations

Value	High Speed Shutter	
0	20.0 ms	1/50 s
64	10.0 ms	1/100 s
128	5.00 ms	1/200 s
192	2.50 ms	1/400 s
256	1.25 ms	1/800 s
320	625.0 us	1/1,600 s
384	312.5 us	1/3,200 s
448	156.25 us	1/6,400 s
512	78.13 us	1/12,800 s
576	39.06 us	1/25,600 s
640	19.53 us	1/51,200 s
690	12.0 us	1/83,947 s

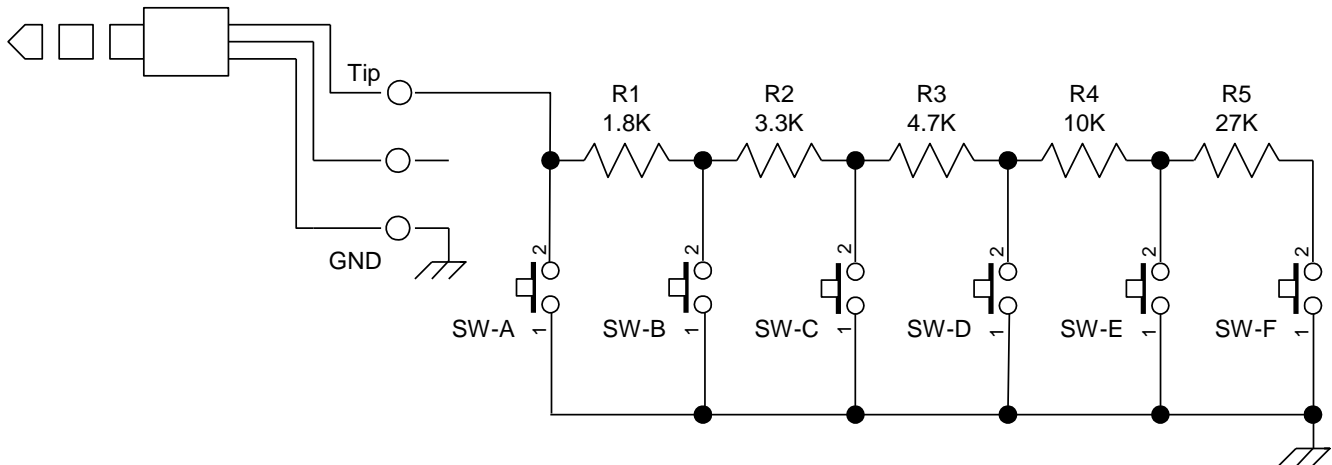
## B. The Camera Control Functions

	Function
1	Display Menu
2	DSP preset (+)
3	DSP preset (-)
4	Contrast (+)
5	Contrast (-)
6	Shadow mask shading level (+)
7	Shadow mask shading level (-)
8	Shadow mask top (+)
9	Shadow mask top (-)
10	Shadow mask bottom (+)
11	Shadow mask bottom (-)
12	Shadow mask top / bottom (+)
13	Shadow mask top / bottom (-)
14	Shadow mask left (+)
15	Shadow mask left (-)
16	Shadow mask right (+)
17	Shadow mask right (-)
18	Shadow mask left / right (+)
19	Shadow mask left / right (-)
20	Horizontal line maker color (+)
21	Horizontal line maker color (-)
22	Horizontal line maker size (+)
23	Horizontal line maker size (-)
24	Horizontal line maker position (+)
25	Horizontal line maker position (-)
26	Vertical line maker color (+)
27	Vertical line maker color (-)
28	Vertical line maker size (+)
29	Vertical line maker size (-)
30	Vertical line maker position (+)
31	Vertical line maker position (-)
32	Horizontal mirror OFF
33	Horizontal mirror ON
34	Horizontal mirror ON/OFF change
35	Manual white balance
36	Auto white balance
37	Push to set white balance
38	Auto/manual white balance change
39	ALC OFF
40	ALC ON
41	ALC ON/OFF change
42	Fixed shutter
43	Auto shutter
44	Auto/fixd shutter change
45	Fixed gain
46	AGC ON
47	Fixed gain/AGC change

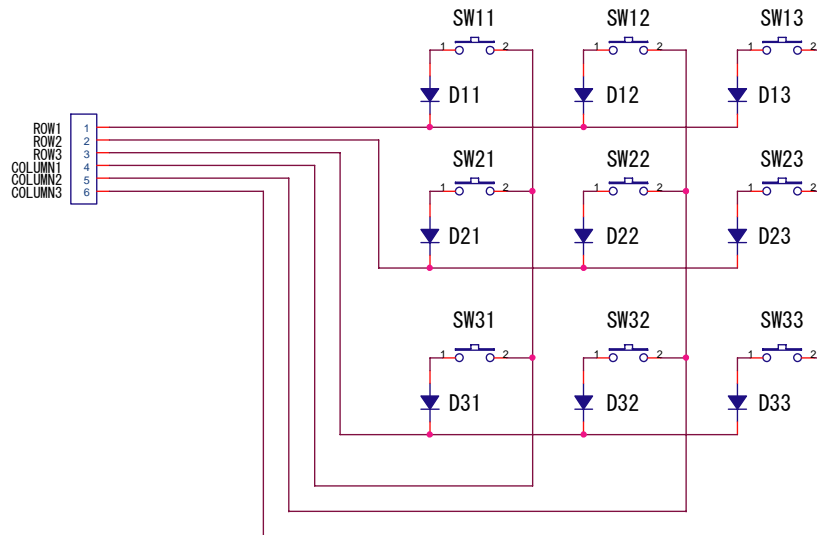
	Function
48	Conceal maker (line maker and shadow mask)
49	Display maker (line maker and shadow mask)
50	Display/Conceal maker (line maker and shadow mask)
51	Conceal line maker
52	Display line maker
53	Display/Conceal line maker
54	Conceal shadow mask
55	Display shadow mask
56	Display/Conceal shadow mask
57	Save to EEPROM (Horizontal mirror OFF)
58	Save to EEPROM (Horizontal mirror ON)
59	Save to EEPROM (Horizontal mirror ON/OFF change)
60	Save to EEPROM (Manual white balance)
61	Save to EEPROM (Auto white balance)
62	Save to EEPROM (Push to set white balance)
63	Save to EEPROM (Auto/manual white balance change)
64	Save to EEPROM (Undisplay maker (line maker and shadow mask))
65	Save to EEPROM (Display maker (line maker and shadow mask))
66	Save to EEPROM (Display/Undisplay maker (line maker and shadow mask))
67	Save to EEPROM (Conceal line maker)
68	Save to EEPROM (Display line maker)
69	Save to EEPROM (Display/Conceal line maker)
70	Save to EEPROM (Conceal shadow mask)
71	Save to EEPROM (Display shadow mask)
72	Save to EEPROM (Display/Conceal shadow mask)
73	Horizontal mirror ON/OFF change (Select: ON, unselect: OFF)
74	Auto/manual white balance change (Select: Auto, unselect: manual)
75	Display/Undisplay maker (line maker and shadow mask) (Select: Display, unselect: Conceal)
76	Display/Undisplay line maker (Select: Display, unselect: Conceal)
77	Display/Undisplay shadow mask (Select: Display, unselect: Conceal)

## C. External Control Board Circuits

SW board circuits for 3.5  $\Phi$  stereo jack (External SW)



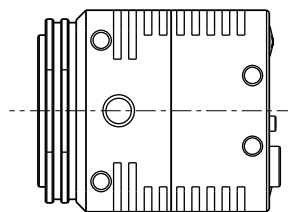
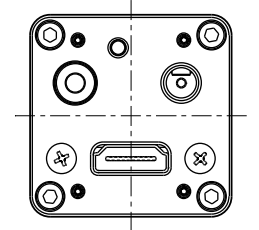
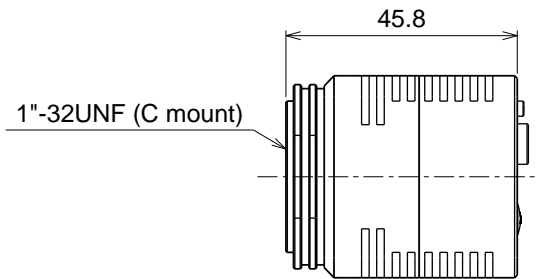
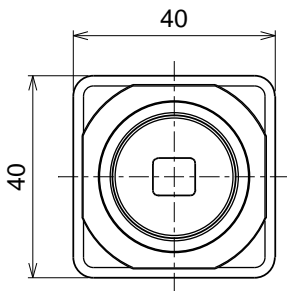
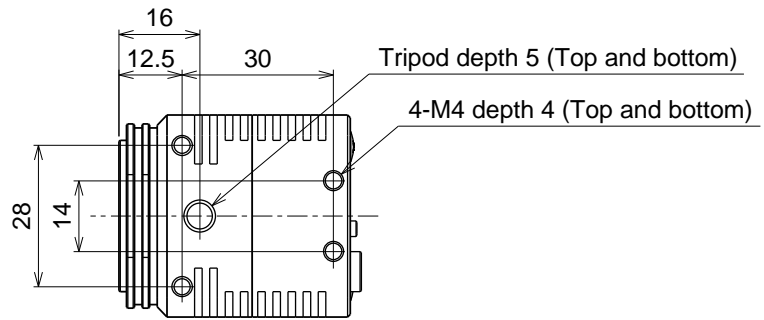
SW board circuits for SM06B-SRSS-TB (JST) on Board type (Board SW)





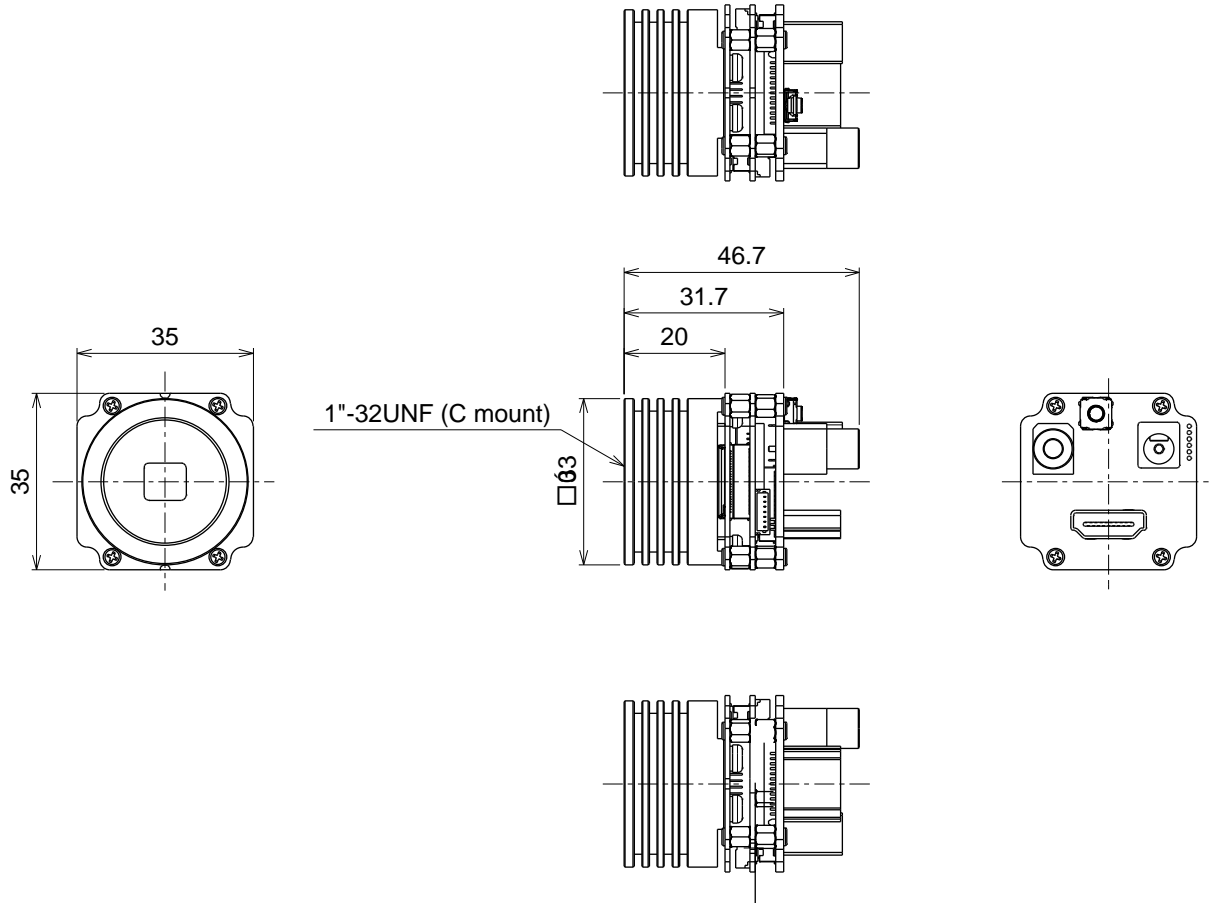
### III. Dimensions

#### A. STC-HD133DV



Unit: mm

## B. STC-HD133DV-B



Unit: mm

## Revisions

Rev	Date	Changes	Note
0.01	2009/12/29	New document	
0.02	2010/1/12	Corrected: Mirror Image – Only horizontal flip DSP Preset – 28 settings	
0.03	2011/3/1	Updated 1. Revised the shutter speed for the 50Hz 2. Added the 59.94 Hz specifications 3. Change the minimum scene illumination 4. Change the power consumption 5. Change the mirror image specification 6. Added the control button for the display menu	

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