

IEEE1394.b
Progressive Scan CCD Camera
KP-FD140F
Specifications

Hitachi Kokusai Electric Inc.

independently varied. It is effective at a application (Image capture, microscope, etc) needed highly accurate color fidelity.

9) External trigger

An external trigger signal input can be used to capture an image at desired timing for instant view or processing. The software trigger via an IEEE1394 cable and our original system corresponding to the hardware trigger can deal with all trigger signals.

3. Specifications

- 1) Imaging device : 1/2-inch progressive scan interline CCD
(with on-chip microlenses)
Total number of pixels : 1434(H) x 1050(V)
No. of effective pixels : 1392(H) x 1040(V)
Unit cell size : 4.65(H) x 4.65(V) μm (Square pixel)
- 2) Scanning system : Progressive scan
- 3) Sync system : Internal / external
- 4) Video signal output
Interface : IEEE1394.b (FireWire 800)
Protocol : IEEE1394-based Digital Camera Specification Version 1.31 compliant
Transfer rate : 800 / 400 / 200Mbps
Image format : RGB24 / RGB48 / YUV (4:2:2) / RAW 8 / RAW 16 / MONO8 / MONO16
Image size : 1360(H) x 1024(V)
1280(H) x 960(V)
1024(H) x 768(V)
800(H) x 600(V)
640(H) x 480(V)
Frame rate : 15fps (Condition: RGB24, 1392(H) x 1024(V))
- 5) Camera remote : IEEE1394 control
- 6) Standard sensitivity : 2000 lx F8
- 7) Minimum illumination : 10 lx (F1.4, Max gain)
- 8) Gain : Auto / Manual (0dB to 18dB)
- 9) Electric shutter speed : Auto (AES) / Manual (VARIABLE)
From 1/100,000 second to 10 second
- 10) External trigger shutter : Mode Fixed shutter (Mode 0)
One trigger (Mode 1)
Reset control (Mode 14)
VD Sync (Mode 15)

Input Via IEEE1394 cable (Software trigger)

Our company original method (Hardware trigger)

- | | | |
|---|-------------|--|
| | Input level | 5Vp-p plus minus 1V |
| 11) External sync signal | VD output | 5Vp-p plus minus 0.3V |
| | Strobe out | 5Vp-p plus minus 0.3V |
| | Through out | 5Vp-p plus minus 0.3V |
| 12) Auto Exposure (ALC: Auto level control) | | : Adjustable for video level |
| 13) White balance | | : ATW / MANUAL / One-push |
| 14) Gamma | | : OFF / LUT |
| 15) Color masking | | : OFF / ON (6 vector independent masking) |
| 16) Color saturation | | : Adjustable |
| 17) Color level | | : Adjustable (Paint-black) |
| 18) Sharpness | | : Adjustable |
| 19) Brightness | | : Adjustable |
| 20) Time stamp | | : OFF / ON |
| 21) Cycle timer sync | | : OFF / ON |
| 22) HD reset | | : OFF / ON |
| 23) Daisy chain | | : Possible, Even if there is no repeater.
If two is connected, the frame rate becomes half. |
| 24) Lens mount | | : C mount (Flange-back adjustment) |
| 25) Power supply | | : DC+8V to +30V (Via IEEE1394 cable) |
| 26) Power consumption | | : Approx. 4.1W (DC+12V) |
| 27) Ambient temperature | | |
| | Operating | : -10 °C to +50 °C / 30 to 80 %RH |
| | Note | : If operated continuously, be sure to use at less than +40 °C(104F) for long term stable performance. |
| | Storage | : -20 °C to +60 °C / 20 to 90 %RH |
| 28) Vibration endurance | | : 68.65 m/s ² or less
(10 to 200Hz, 30 minutes each on XYZ axes)
(Do not subject to strong vibration for long periods of time.) |
| 29) Shock endurance | | : 490.3 m/s ² or less (vertical, horizontal, once each face) |
| 30) External dimensions | | : 44(W) x 44(H) x 54(D) mm
(not including lens and protrusions) |
| 31) Mass | | : Approx. 130g (without lens) |
| 32) Supplied equipment | | : Camera
CD-ROM (Operation manual / Driver soft) |
| 33) Optional accessories | | : IEEE1394 cable (with Locked mechanism)
Tripod adopter (TA-FD140) |

4. Video format

A. Fixed format

Format	Mode	Image Size	Color Coding	Frame Rate				
				30	15	7.5	3.75	1.875
0	3	640 x 480	YUV(4:2:2)	○	○	○	○	○
	4	640 x 480	RGB	○	○	○	○	○
	5	640 x 480	YMONO8	○	○	○	○	○
	6	640 x 480	YMONO16	○	○	○	○	○
1	0	800 x 600	YUV(4:2:2)	—	○	○	○	/
	1	800 x 600	RGB	—	○	○	/	/
	2	800 x 600	YMONO 8	—	○	○	/	/
	3	1024 x 768	YUV(4:2:2)	—	○	○	○	○
	4	1024 x 768	RGB	—	○(*)	○	○	○
	5	1024 x 768	YMONO 8	—	○	○	○	○
	6	800 x 600	YMONO 16	—	○	○	○	/
	7	1024 x 768	YMONO 16	—	○	○	○	○
2	0	1280 x 960	YUV(4:2:2)	—	○(*)	○	○	○
	1	1280 x 960	RGB	—	○(*)	○	○	○
	2	1280 x 960	YMONO 8	—	○	○	○	○
	6	1280 x 960	YMONO 16	—	○(*)	○	○	○

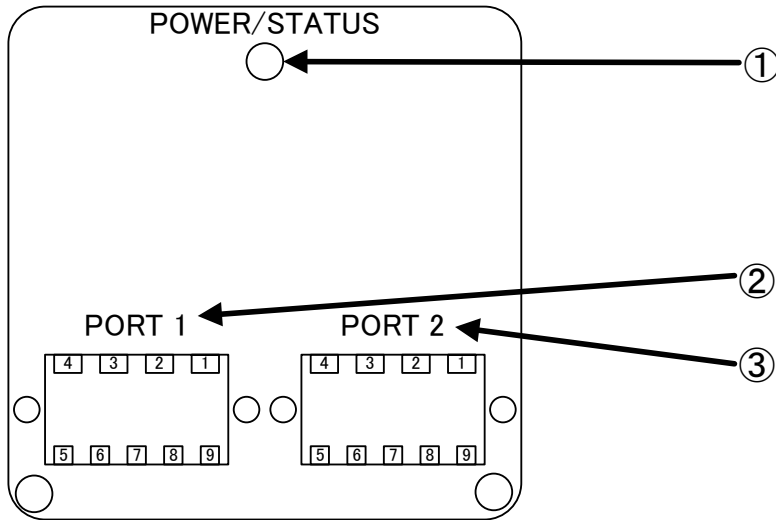
B. Free format (Format7)

Format	Mode	Image Size	Color Coding	Packet Size [Byte]			
				8192 (*)	6144 (*)	4096	2048
7	0	1360 x 1024	YUV(4:2:2)	8192 (*)	6144 (*)	4096	2048
		1360 x 1024	RGB	8192 (*)	6144 (*)	4096	2048
		1360 x 1024	YMONO 8	8192 (*)	6144 (*)	4096	2048
		1360 x 1024	YMONO 16	8192 (*)	6144 (*)	4096	2048
		1360 x 1024	RAW8	8192 (*)	6144 (*)	4096	2048
		1360 x 1024	RAW16	8192 (*)	6144 (*)	4096	2048
		1360 x 1024	RGB48	8192 (*)	6144 (*)	4096	2048

(*): required S800 data rate

5. Rear panel and pin assignment

REAR PANEL



① POWER/STATUS LED

LED status

LED	Green	Yellow
Power ON	light on	light off
Transmission	blink off	blink on
Transmission pause	blink on	blink off

② IEEE1394b connector

③ IEEE1394b connector

Signal connection to IEEE 1394.b(PORT1/PORT2)

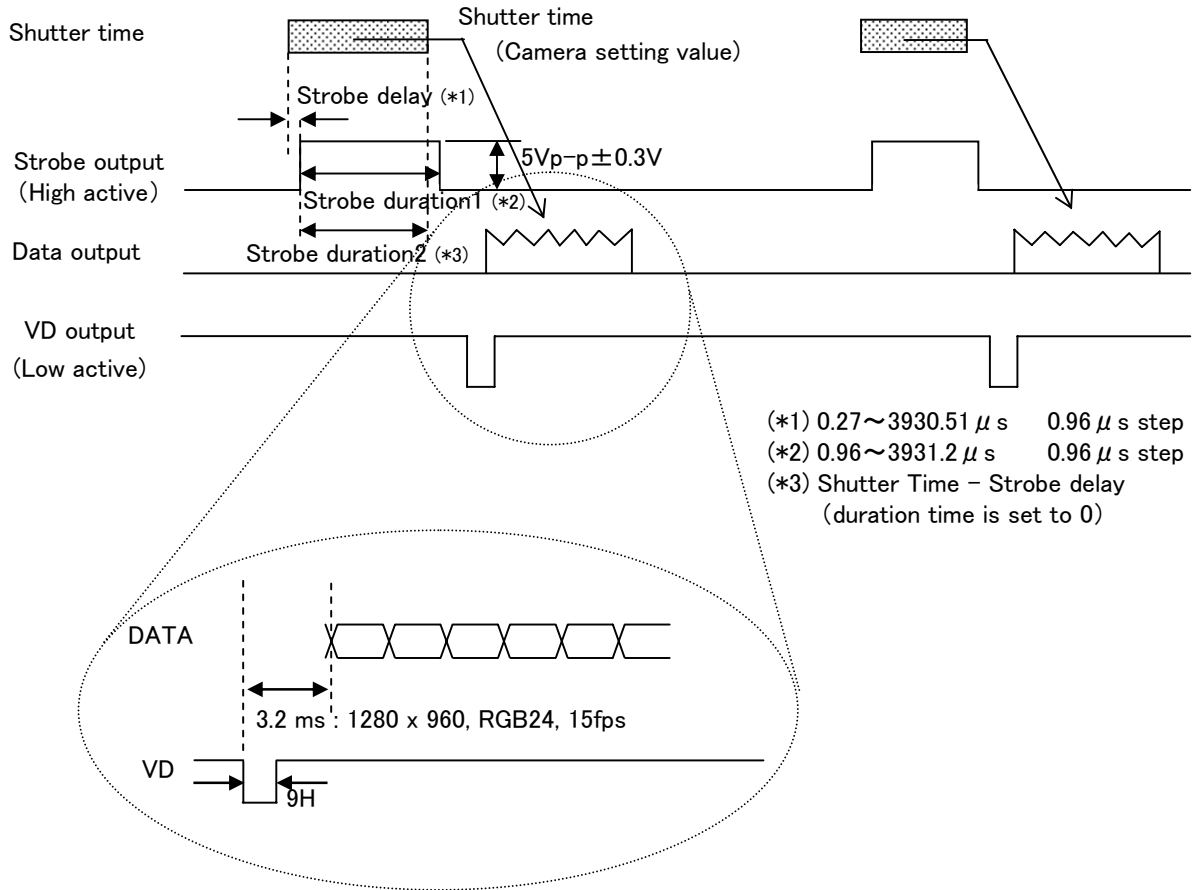
1	TPB-	SERIAL DATA
2	TPB+	
3	TPA-	
4	TPA+	
5	TPA(R)	SHIELD GND
6	VG	POWER GND
7	I/O	*Programmable I/O
8	VP	POWER +12V
9	TPB(R)	SHIELD GND

Viewer Soft Setting(PORT1/PORT2)

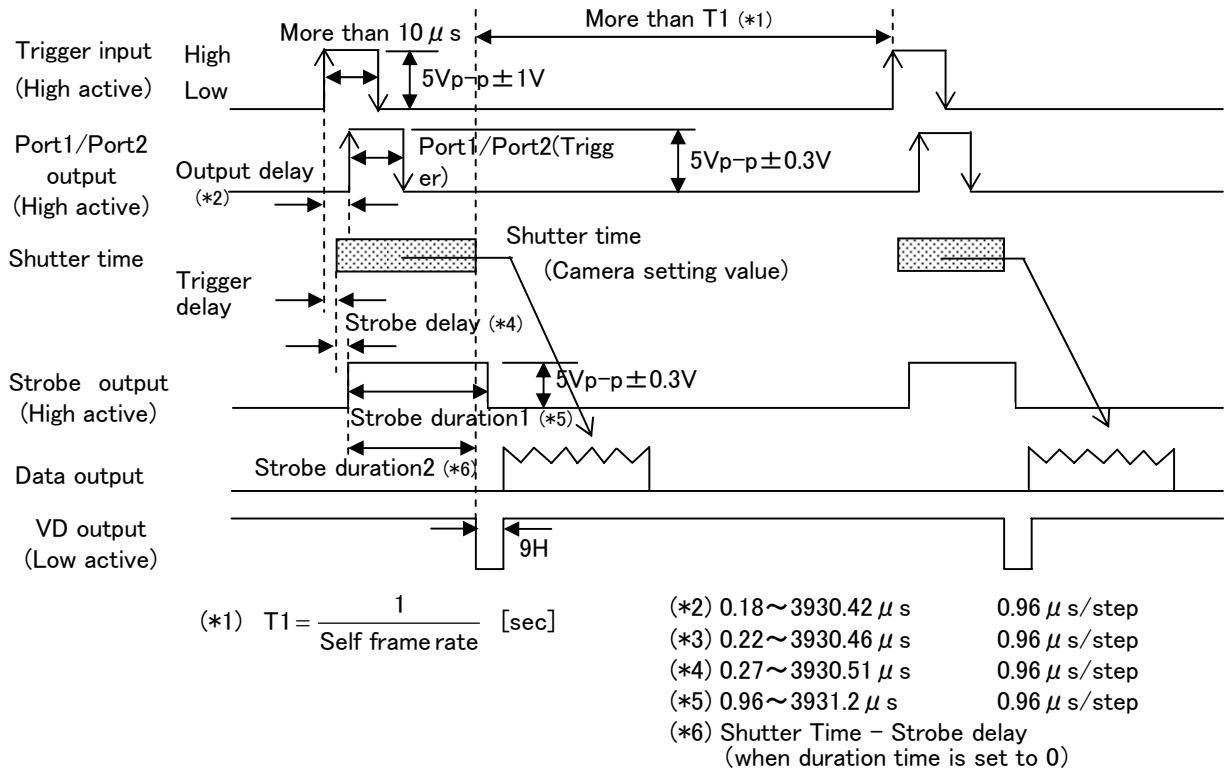
*Programmable I/O	In	Out
Trigger	○	○
VD	○	○
Strobe (Flash)	×	○

6. Timing chart

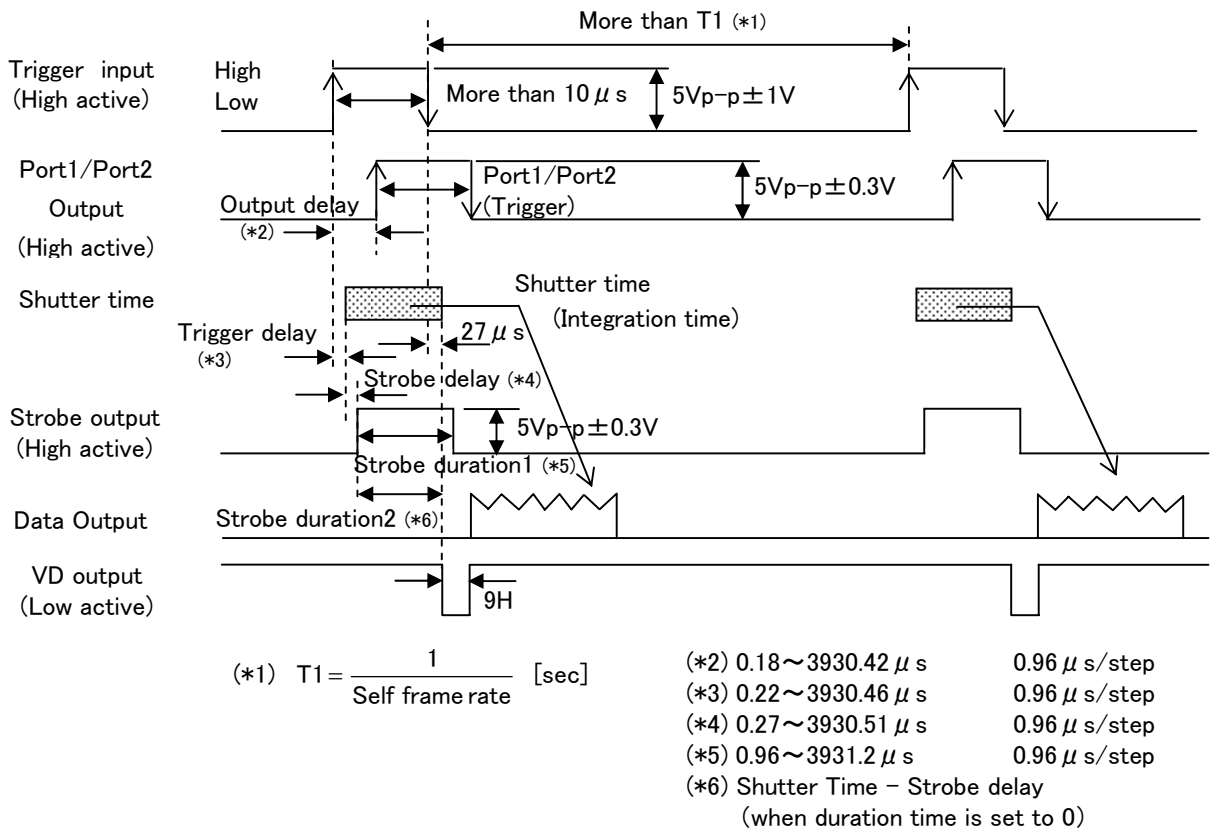
a) Digital Out



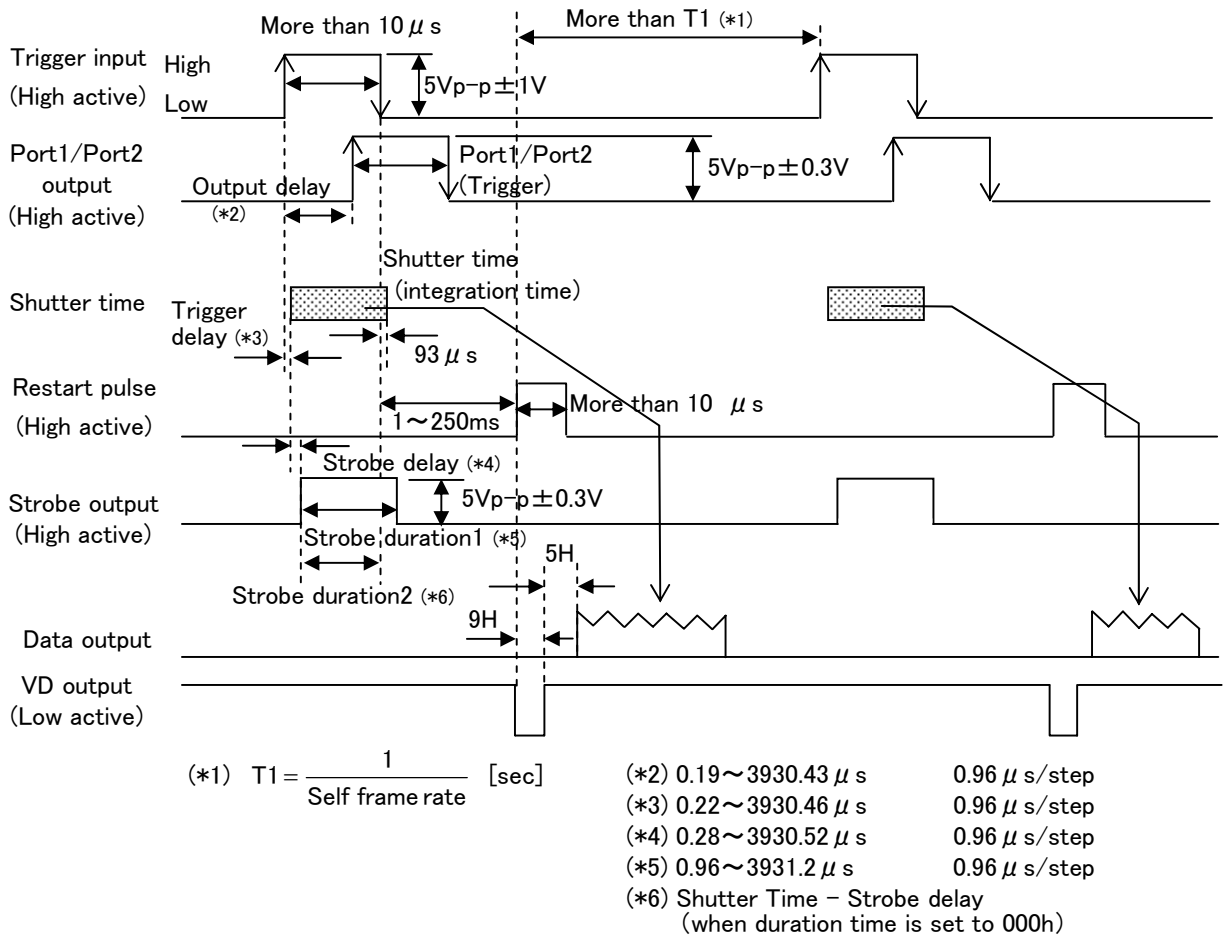
b) Fixed shutter mode



c) One-trigger mode



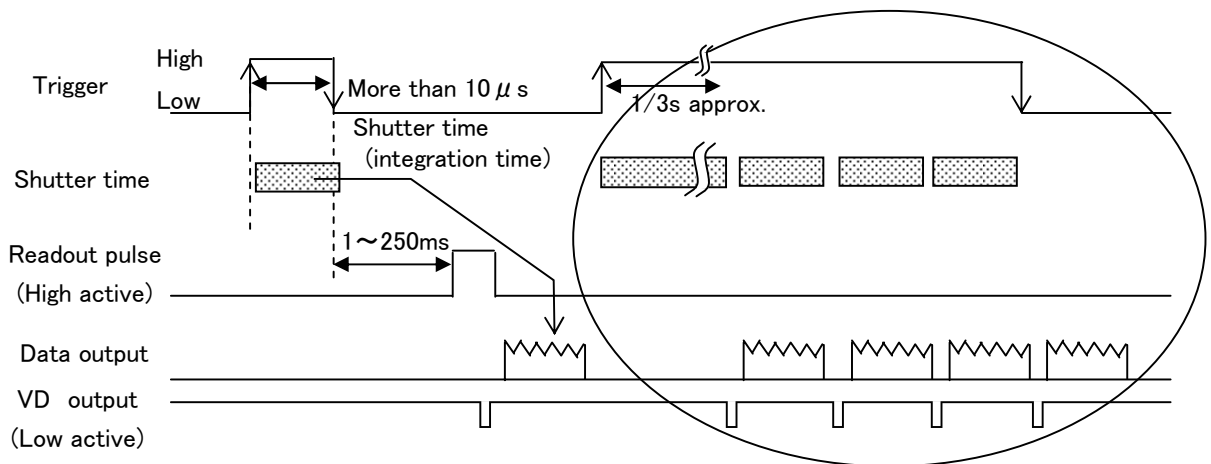
d) Rest control



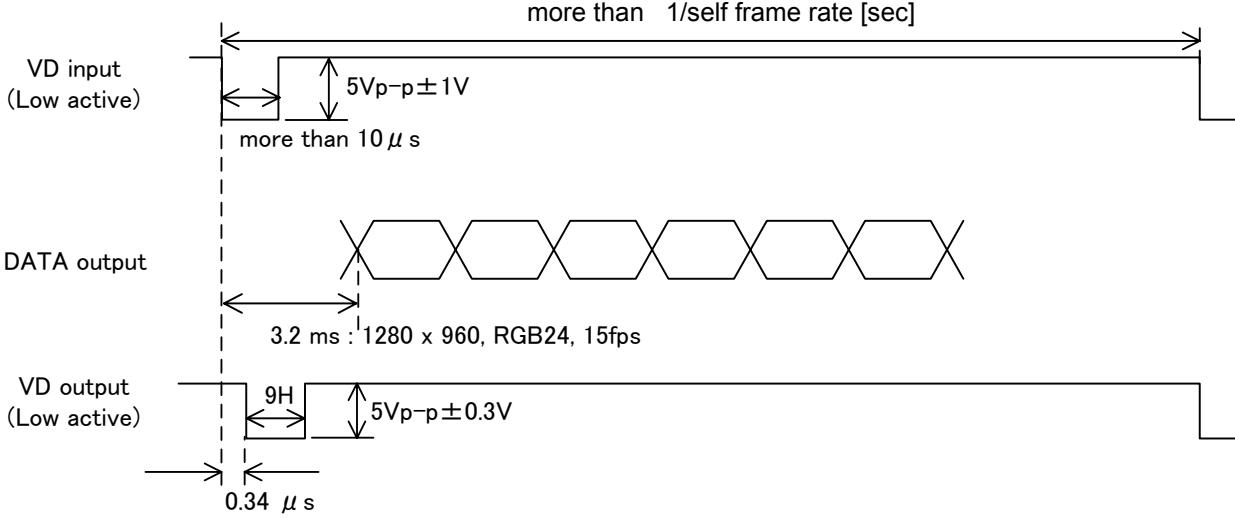
Note: Special function of reset control Trigger

The camera shifts to the output of a normal mode (continuous output) when Trigger signal passes about 1/3 seconds in the state of High. (The image is output by inputting the Trigger at the VD cycle for this period.)

It returns to the Trigger mode if Trigger signal becomes Low. However, after becoming Low Trigger, the period of 100ms becomes a Trigger signal input prohibition period.

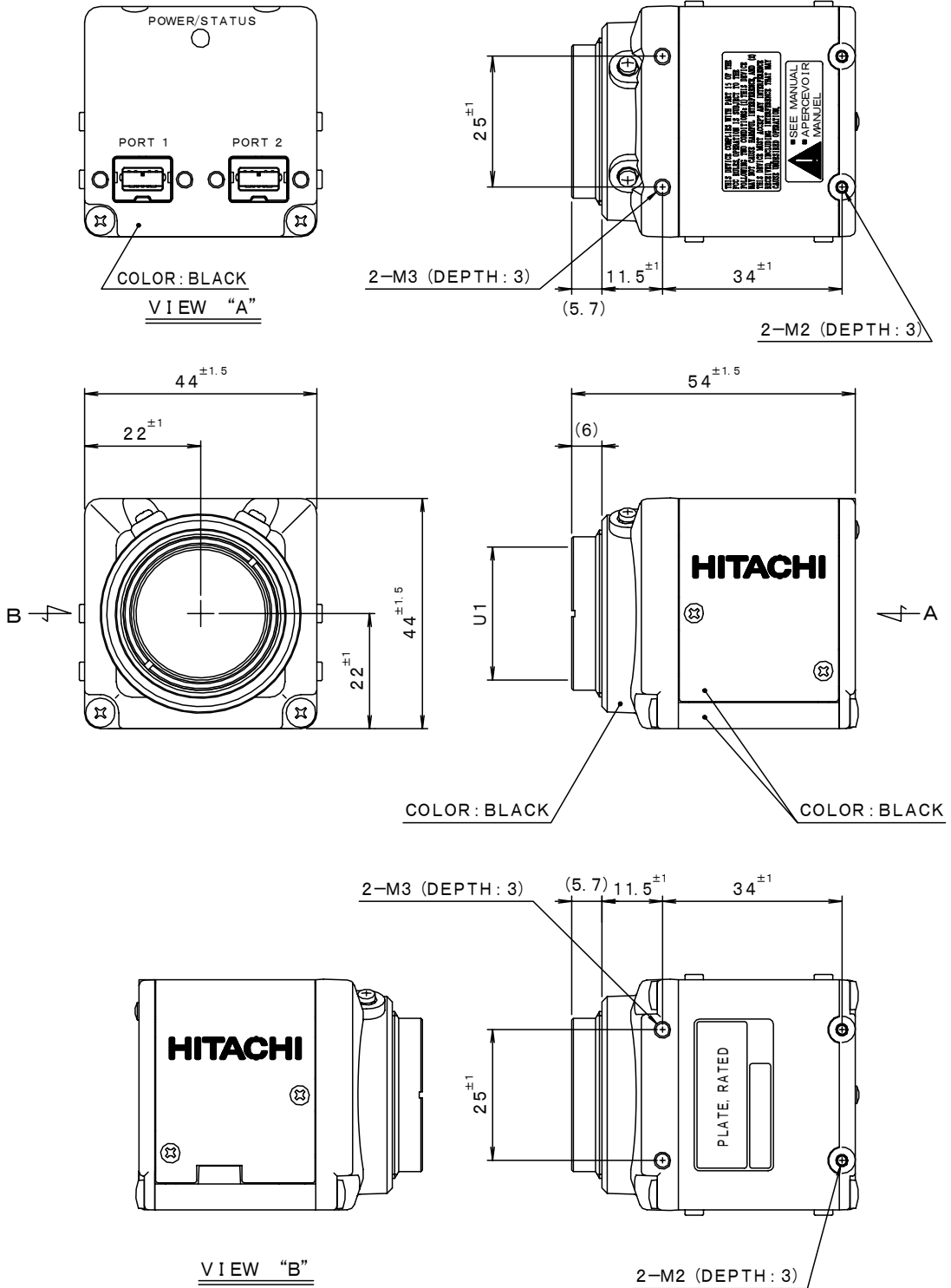


e) VD sync



7. External View

- UNIT : mm
- MASS : APPROX 130 g



Notice:

These specifications are subject to change without prior notice due to product improvement. Confirm the most recent specifications at time of order.

Hitachi Kokusai Electric certifies this product complies with the standard warranty conditions of Hitachi Kokusai Electric, and that quality control is implemented to the extent required to comply with these conditions.

Warranty and service:

- 1) The guarantee period is one year after the data purchase. However, the defects due to erroneous use or intentional act are excluded.
- 2) As the defect after expiration of the guarantee period, where product repair is possible, repair will be performed at charge.
- 3) The present Warranty pertains only to the camera unit. Secondary malfunctions attributable to camera failure as well as expenses incurred by disassembly and reassembly of the related system, are beyond the scope of this Warranty.
- 4) Compensation for loss of business, loss or damage to software, database and other contingent losses are beyond the scope of this Warranty.
- 5) Hitachi Kokusai Electric Inc. is not liable for the losses caused when the equipment is used in a system, use for business trades, production process, medical fields, crime prevention applications, etc.
- 6) The parts used in the equipment have their respective lives. The lives of such parts will be shortened under the environments of high temperature or high humidity. When the stable operation is required for a long time, it is recommended to perform periodical maintenance and inspection every year or every two years.