

SENTECH

STC-700 series

Industrial B&W CCD Cameras

Specifications

1. Features

- **1/3", 1/2" and 2/3" CCD formats are available.**
- **Extremely compact.**
- **Built-in various trigger functions**
 - Fixed integration random shutter trigger
 - Variable integration random shutter trigger (one pulse and two pulse trigger)
- **Fast 1/100,000sec electronic shutter with one pulse variable integration random shutter trigger**
- **Extended integration capability with variable integration random shutter trigger**
- **Restart/Reset function**
 - Integration period can be controlled by external VD
- **HD/VD or VS as external sync. Input (VD/VS auto detection)**
- **Easy set up**
 - Most of switches and adjustments are located on the rear panel. 10 position rotary switch for the shutter speed setting.

2. Specifications

Model No.	STC-700 -700E	-705	-720	-725	-730	-735	Unit, Others
CCD Size	2/3"		1/2"		1/3"		
Effective Pixel No.	768 × 494	752 × 582	768 × 494	752 × 582	768 × 494	752 × 582	H × V
Chip Size	10.25 × 8.5	10.25 × 8.5	7.95 × 6.45	7.95 × 6.45	6.00 × 4.96	6.00 × 4.96	H × V (mm)
Cell Size	11.6 × 13.5	11.6 × 11.2	8.4 × 9.8	8.6 × 8.3	6.35 × 7.40	6.50 × 6.25	H × V (μ m)
Scan Size	8.91 × 6.67	8.72 × 6.52	6.45 × 4.84	6.47 × 4.83	4.88 × 3.66	4.89 × 3.64	H × V (mm)
Signal Format	EIA	CCIR	EIA	CCIR	EIA	CCIR	
Horizontal Frequency	15.734	15.625	15.734	15.625	15.734	15.625	KHZ
Vertical Frequency	59.94	50.00	59.94	50.00	59.94	50.00	Hz
Horizontal Resolution	570	560	570	560	570	560	TV Line
Lens Mount	C-Mount						
Sync. System	Int. or Ext. (Auto detect of HD input pulse at "Ext. position" of the sync. switch.						The switch on the rear panel.
Ext. sync. signal	HD/VD (H;2 ~ 5V, L;0 ~ 0.6V), 15.734KHz ± 1.0% (EIA), 15.625KHz ± 1.0% (CCIR), None-interlace ext. sync. acceptable. 1.0Vp-p composite video signal sync. (Auto detect VD or VS)						Sync.: active low
	Input impedance switchable (75 or high impedance) for HD/VD						The switch on the rear panel.
Scanning System	2:1 Interlace (Int. Sync)						
SN Ratio	56db at gain zero.						
Gamma Correction	On (=0.45) /Off (=1.0)						The switch on the rear panel.
Integration Mode	Frame or field						The switch on the rear panel.
Electronics Shutter (Switch setting)	1/250,1/500,1/1000,1/2000,1/4000,1/10000 Flicker less: 1/100(EIA),1/120(CCIR) No shutter: 1/60(EIA),1/50(CCIR)						The rotary switch on the rear panel.

Model No.	STC-700 -700E	-705	-720	-725	-730	-735	Unit, Others
Gain	AGC (0-20db)/ Manual (POT on the rear panel)/ Fixed at 13db						The switch on the rear panel.
Ext. Trigger Types	Switch setting random shutter trigger (Integration time is set by the rotary switch)						The switch on the rear panel.
	Variable integration random trigger (one pulse and two pulse trigger)						
Ext. Trigger Mode	None-reset/Reset modes						The switch on the rear panel.
Ext. Trigger Signals	Positive/Negative modes H level=3 ~ 5V, L level=0 ~ 0.6V						The switch on the rear panel.
Reset restart	Integration time is controlled by ext. VD (requires ext. HD and VD)						The switch on the rear panel.
WEN	Active high, H level=3 ~ 5V, L level=0 ~ 0.6V						Available when trigger is used.
Power Input	+12Vdc (10.5V ~ 15V)						
Power Current	220mA(STC-700), 180mA(STC-720), 175mA(STC-730), 170mA(STC-700E)						At default setting
Operating Temp. Range	-5 ~ +45 20 ~ 80% (No condensation)						
Storage Temp. Range	-30 ~ +60 20 ~ 80% (No condensation)						
Spec. Guarantee Temp. Range	0 ~ +40						
Vibration	10G (20 ~ 200Hz)						
Shock	70G						
Size	44(W) x 29(H) x72.7(D)						
Weight	97g						

(Note) STC-700E does not have trigger, restart/reset, WEN and VS sync. functions.

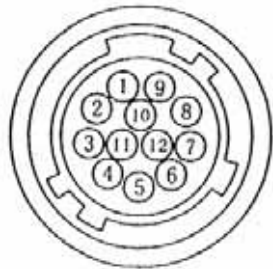
3. 12-Pin Connector Assignment

Pin No.	Int. Sync.	Ext. HD/VD Sync.	Ext. VS(note 1)	Trigger(note2)
1	GND	GND	GND	GND
2	+ 1 2 V	+ 1 2 V	+ 1 2 V	+ 1 2 V
3	GND	GND	GND	GND
4	VIDEO	VIDEO	VIDEO	VIDEO
5	GND	GND	GND	GND
6	HD OUT	HD IN		HD IN
7	VD OUT	VD IN	VS IN	VD IN
8	GND	GND	GND	GND
9	(note3)			S-TRIG IN
10				WEN OUT
11				TRIG IN
12	GND	GND	GND	GND

(Note 1): Not available with STC-700E.

(Note 2): Not available with STC-700E.

(Note 3): “ ” indicates no function.



12-pin connector

(Note) Mating connector: Hirose HR10A-10P-12S

4. Sync. Types / Mode Types Cross Reference Table

Mode	Int. Sync.	Ext. HD/VD Sync.	Ext. VS Sync.
Normal Operation			
One pulse variable integration random trigger, reset			×
One pulse variable integration random trigger, none-reset			×
Two pulse variable integration random trigger, reset			×
One pulse variable integration random trigger, none-reset			×
Switch setting random shutter trigger, reset			×
Switch setting random shutter trigger, none-reset			×
Restart/Reset	×		×

: Available
: Available only HD
x : Not available
: Requires HD/VD

Int. Sync. Operation:

Whenever the sync. switch is set to “Int.”, or whenever no HD input exists and the sync. switch is set at “Ext”.

Ext HD/VD Sync. Operation:

Whenever the sync. switch is set to “Ext” and HD input and VD input exist.

Ext. VS Sync. Operation:

Whenever the sync. switch is set to “Ext” and VS input exists.

5. Shutter Speed Setting**(Caution)**

Shutter speed settings are different in the normal operation mode and trigger operation mode. The rotary switch for this setting is located on the back panel.

a. Shutter speed setting for the normal operation mode

Switch Position	Shutter Speed (Second)
0	1/60 (EIA), 1/50 (CCIR)
1	Flicker less mode, 1/100 (EIA), 1/120 (CCIR)
2	1/250
3	1/500
4	1/1000
5	1/2000
6	1/4000
7	1/10000
8	Shutter off(Field Integration):1/60 (EIA), 1/50(CCIR) Shutter off(Frame Integration):1/30(EIA), 1/25(CCIR)
9	Invalid

b. Shutter speed setting for the fixed integration random shutter trigger

Switch Position	Shutter Speed (Second)
0	1/60
1	1/120
2	1/250
3	1/500
4	1/1000
5	1/2000
6	1/4000
7	1/10000
8	1/30
9	Extended integration operation (note 1)

(Note 1)

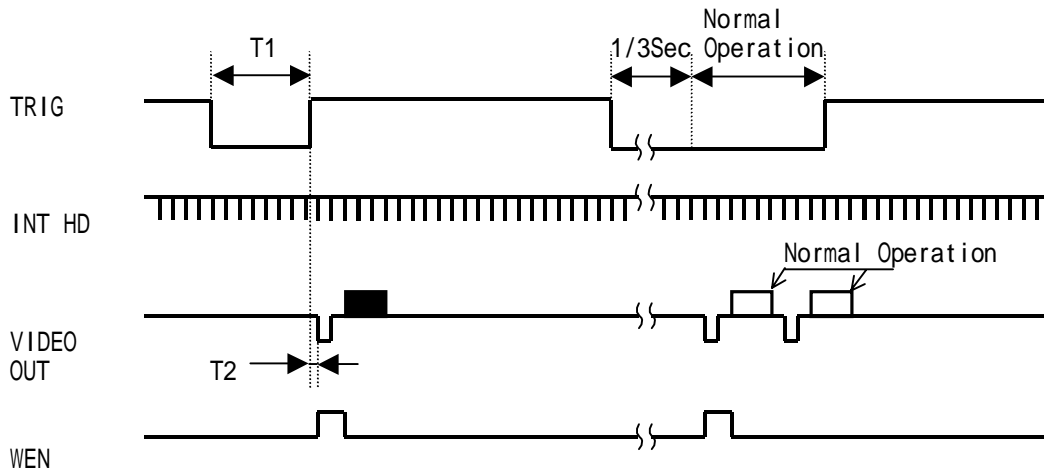
This extended integration operation is available only when variable integration random shutter trigger mode (either one pulse or two pulse) is selected. With this setting, the integration time can be more than 1/3 of second (333 ms).

6. Trigger Operation Timing Charts

(Note)

This camera accepts both positive and negative polarity trigger input signal. However, only negative polarity pulse is used as examples in the following charts.

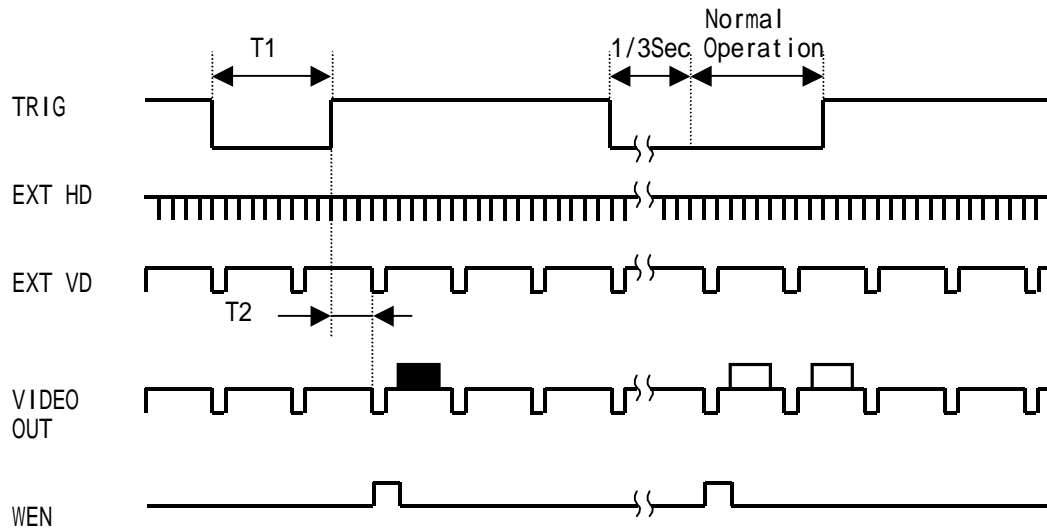
a. One Pulse Variable Integration Random Trigger (Reset Mode)



T1: 100uSec – 1/4Sec (When the trigger duration becomes more than 1/3Sec, the camera goes back to normal operation (same as “shutter off operation”). Set the shutter speed as “extended integration operation”, when more than 1/3Sec integration is needed (see 5.b).

T2: Less than 1H.

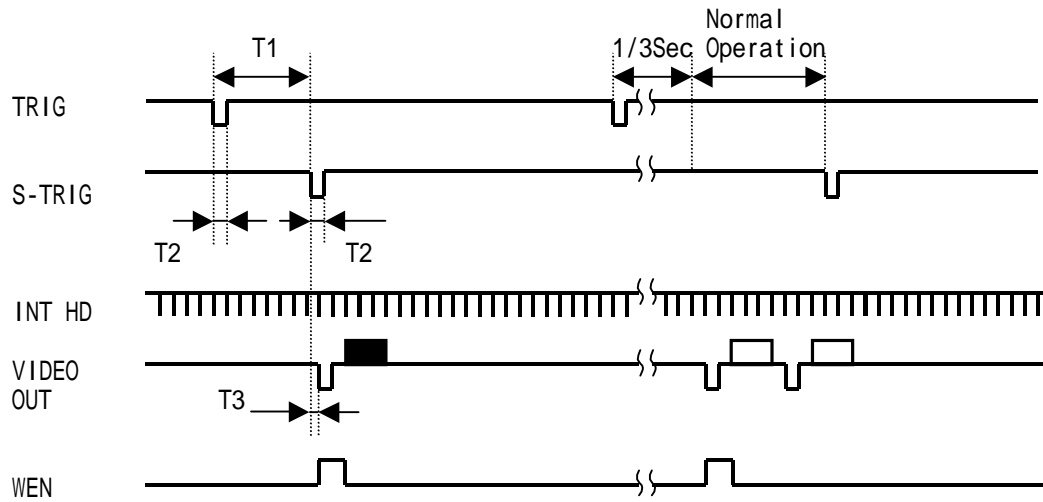
b. One Pulse Variable Integration Random Trigger (None-reset Mode)



T1: 100uSec – 1/4Sec (When the trigger duration becomes more than 1/3Sec, the camera goes back to normal operation (same as “shutter off operation”). Set the shutter speed as “extended integration operation”, when more than 1/3Sec integration is needed (see 5.b).

T2: Video signal outputs at the following VD after the rising edge of the trigger pulse.

c. Two Pulse Variable Integration Random Trigger (Reset Mode)

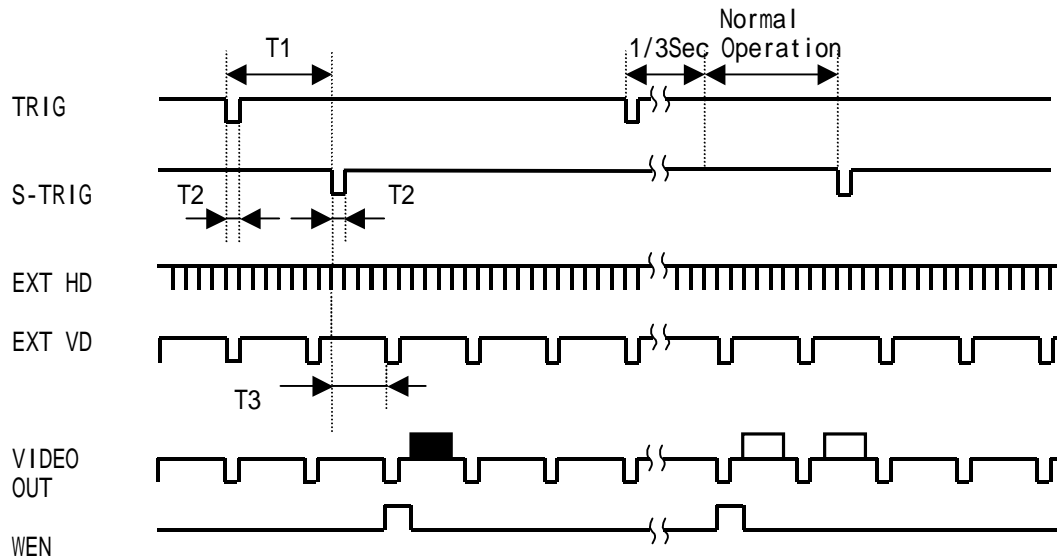


T1: 10uSec – 1/4Sec (When the trigger duration becomes more than 1/3Sec, the camera goes back to normal operation (same as “shutter off operation”). Set the shutter speed as “extended integration operation”, when more than 1/3Sec integration is needed (see 5.b).

T2: 4uSec – 1mSec.

T3: Less than 1H.

d. Two Pulse Variable Integration Random Trigger (None reset Mode)

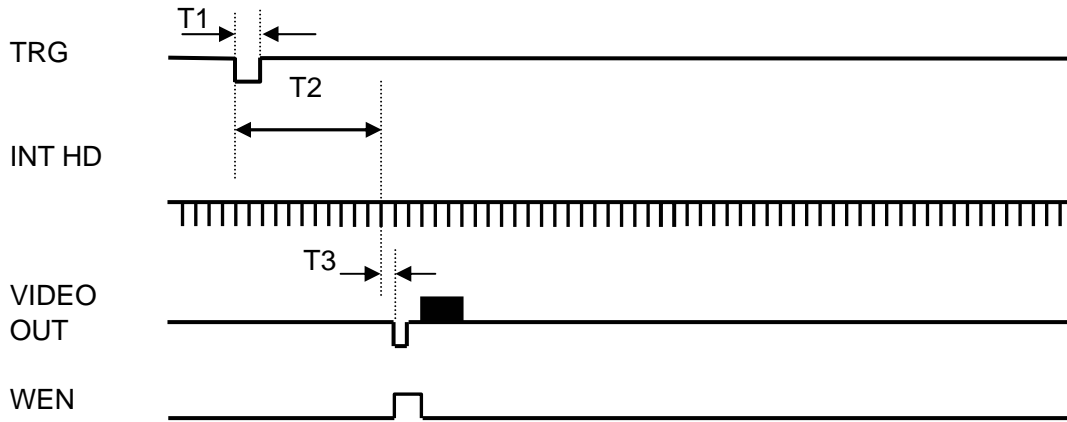


T1: 10uSec – 1/4Sec (When the trigger duration becomes more than 1/3Sec, the camera goes back to normal operation (same as “shutter off operation”). Set the shutter speed as “extended integration operation”, when more than 1/3Sec integration is needed (see 5.b).

T2: 4uSec – 1mSec.

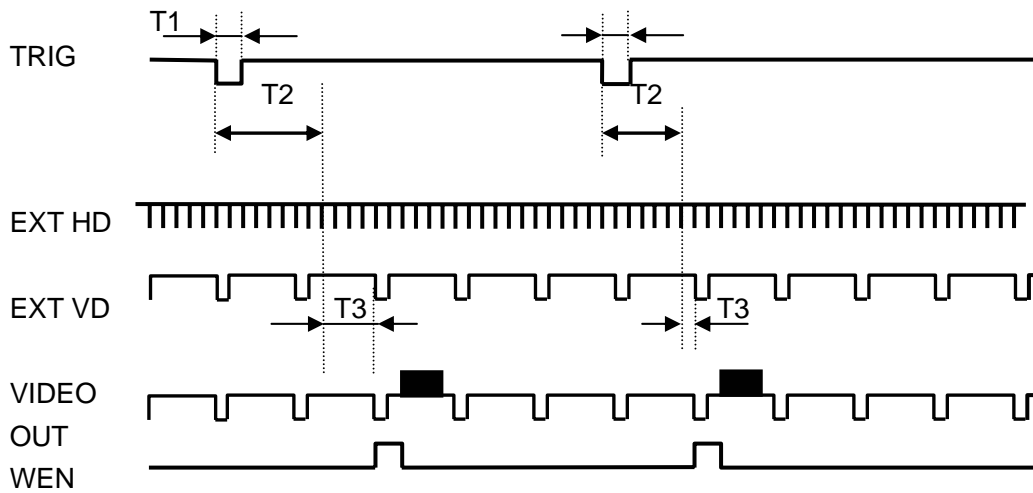
T3: Video signal outputs at the following VD after the falling edge of the trigger Pulse “S-Trig”.

e. Switch setting random shutter trigger (Reset)



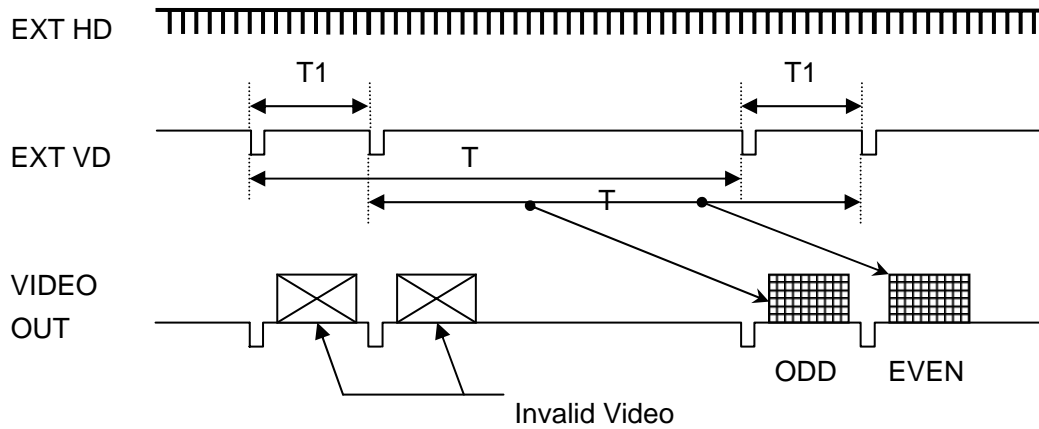
T1: 4uSec – 1mSec.
 T2: Integration and defined by the rotary switch.
 T3: Less than 1H.

f. Switch setting random shutter trigger (Reset)



T1: 4uSec – 1mSec.
 T2: Integration and defined by the rotary switch.
 T3: Video signal outputs at the following VD after the falling edge of the trigger pulse.

g. Restart Reset (Frame Integration)



In this mode, the first VD initiates the ODD integration and the second VD initiates the EVEN integration. The end of the integration periods are determined by the third and fourth VDs accordingly.

(Note) EXT HD is required in this mode.

T: More than 262.5H for EIA models. More than 312.5H for CCIR models.

T1: 1/60 Sec. for EIA. 1/50 Sec. for CCIR.