

Specifications

Products Monochrome: STC-CL83A

Color: STC-CLC83A

“XGA Camera Link Output Camera”
1/3” XGA Format Progressive CCD CameraLink Camera

SENSOR TECHNOLOGIES AMERICA, INC

1. Specifications

1.1 Electronic Specifications:

| | | |
|------------------------------------|--|----------|
| Image Sensor: | 1/3 inch Interline XGA progressive CCD | |
| | STC-CL33A (Monochrome): | ICX204AL |
| | STC-CLC33A (Color): | ICX204AQ |
| Total Element: | 1077 (H) x 788 (V) | |
| Effective Picture Element: | 1034 (H) x 779 (V) | |
| Active Picture Element: | 1024 (H) x 768 (V) | |
| Chip Size: | 5.80 (H) x 4.92 (V) mm | |
| Cell Size: | 4.65 (H) x 4.65 (V) μ m | |
| Scanning System: | Progressive Scan | |
| Scanning Method: | Full Scan, 1/2 Partial Scan, 1/4 Partial Scan, Variable Partial Scan | |
| Frame Rate: | 30 fps at Full Scan | |
| Horizontal Drive Frequency: | 29.5 MHz | |
| Horizontal Frequency: | 23.23 kHz | |
| Vertical Frequency: | 29.27 Hz | |
| Resolution | 770 TVL (Raw Data) | |
| S/N Ratio | \leq 10 Digit | |
| Minimum Scene Illumination: | 1 Lux at F1.4 (Gain Maximum) | |
| Gain: | 0 to 27 dB | |
| Gamma: | Fixed at 1 | |
| Sync. System: | Internal / External | |
| Electronic Shutter: | Variable, Can be set at H and Clock | |
| Trigger Mode: | Plus Width Trigger (V Reset / Non-Reset) Edge Preset Trigger (V Reset / Non-Reset) Sync-Reset Reset-Restart | |
| Video Output: | 10bits Raw Data | |
| Power Supply: | +12V DC +/- 1.2V | |
| Power consumption: | Less than 1.8W | |
| Communications: | RS232C through CameraLink Connector | |
| I/O: | LV-TTL (4 Channels at optional) | |

1.2 Mechanical Specifications:

| | |
|-----------------------------|---|
| Dimensions: | 28 (W) x 28 (H) x 40 (D) mm (excluding camera mount, connectors and lens) |
| Optical Filter: | No IR cut filter |
| Lens Mount: | C Mount |
| Weight: | 43g |
| Camera Mount Tripod: | Optional |

1.3 Connectors Specifications:

CameraLink connector: 3M SDR equivalent

| Pin No. | Signals | Pin No. | Signals |
|---------|------------|---------|------------|
| 1 | GND | 14 | GND |
| 2 | X0- | 15 | X0+ |
| 3 | X1- | 16 | X1+ |
| 4 | X2- | 17 | X2+ |
| 5 | Xclk- | 18 | Xclk+ |
| 6 | X3- | 19 | X3+ |
| 7 | SerTC+ | 20 | SerTC- |
| 8 | SerTFG- | 21 | SerTFG+ |
| 9 | CC1- (TRG) | 22 | CC1+ (TRG) |
| 10 | CC2+ | 23 | CC2- |
| 11 | CC3- | 24 | CC3+ |
| 12 | CC4+ | 25 | CC4- |
| 13 | GND | 26 | GND |

Power and I/O connector: HR10A-7R-6PB equivalent

| Pin No. | Signals | IN/OUT | Signal Voltage |
|---------|---------|--------|----------------|
| 1 | GND | IN | 0V |
| 2 | I/O-1 | IN/OUT | +3.3V DC |
| 3 | I/O-2 | IN/OUT | +3.3V DC |
| 4 | I/O-3 | IN/OUT | +3.3V DC |
| 5 | TRG OUT | OUT | +3.3V DC |
| 6 | +12V DC | IN | +12V DC |

1.4 Environmental Conditions

1.4.1 Ambient Temperature Range

Operational: -5 to +50 deg. C (RH less than 85%, no condensation)
 Storage: -30 to +65 deg. C (RH less than 90%, no condensation)

1.4.2 Shock and Vibration

Shock: 150m/s², 6 directions, 3 times each
 Vibration: 10 to 150Hz, half amplitude 0.35mm (acceleration 50m/s²),
 3 directions, 8 minutes, 10 times each

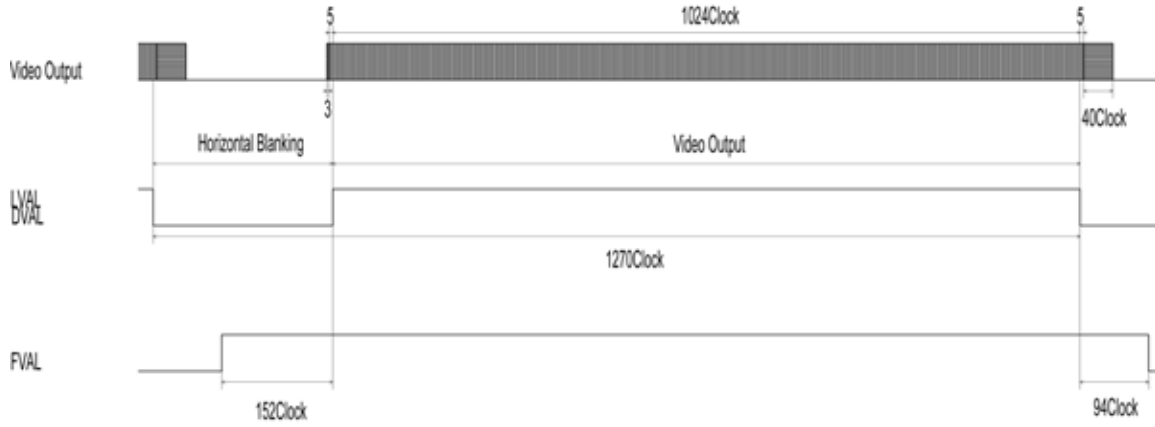
1.4.3 RoHS

RoHS: RoHS compliance camera

2. Video Output Timing

2.1 Horizontal Output Timing (All mode)

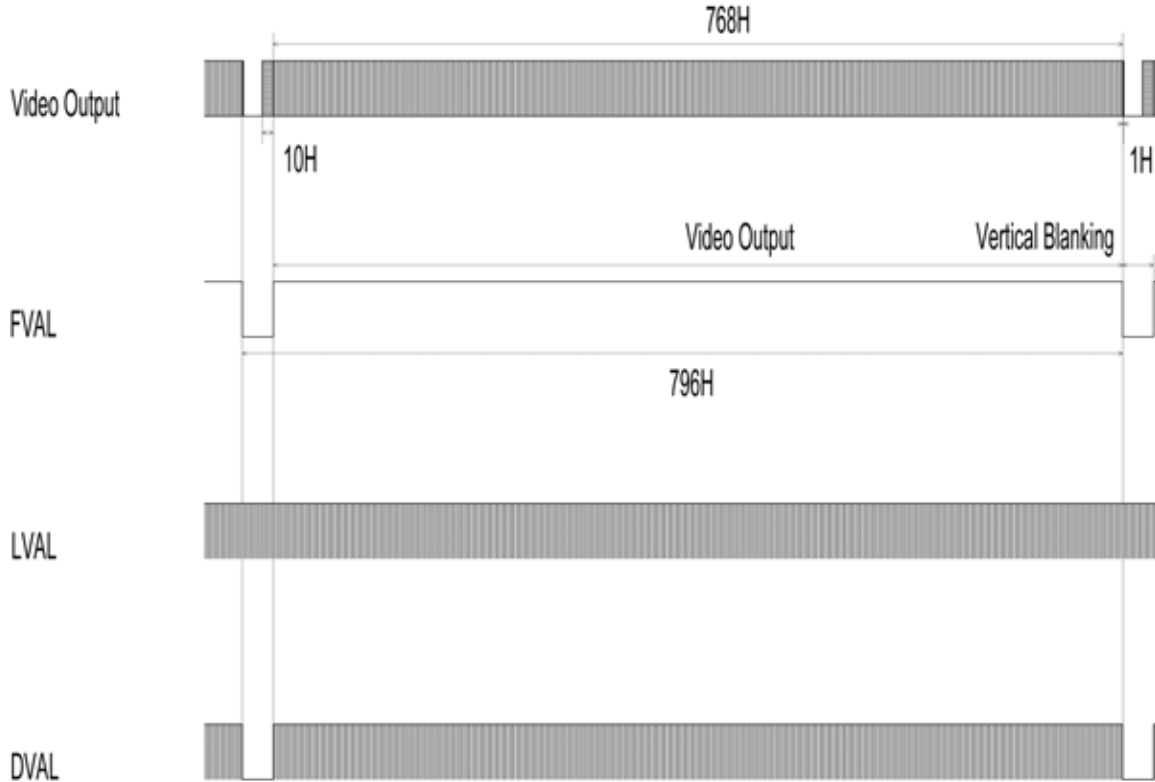
1 Clock = 33.9 nsecond



2.2 Vertical Output Timings

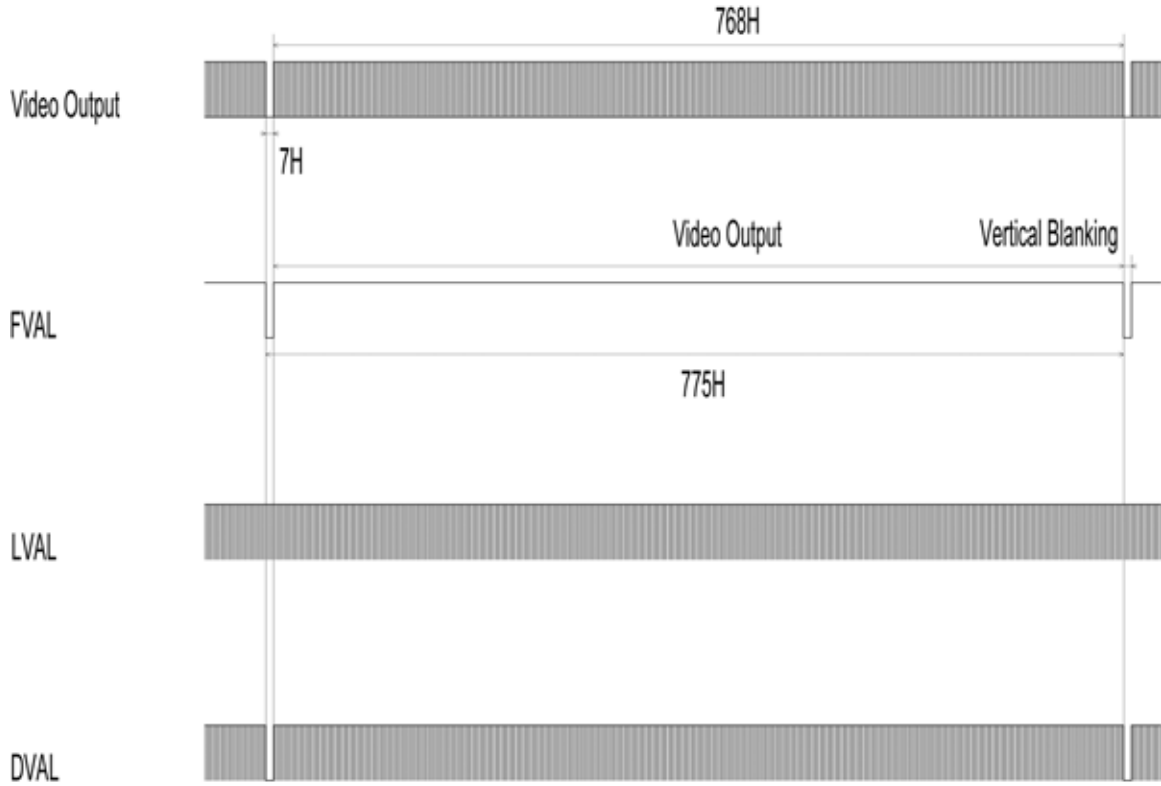
2.2.1. Full Scanning (Normal)

Frame Rate = 29.1 fps
1H = 43.0508 usecond



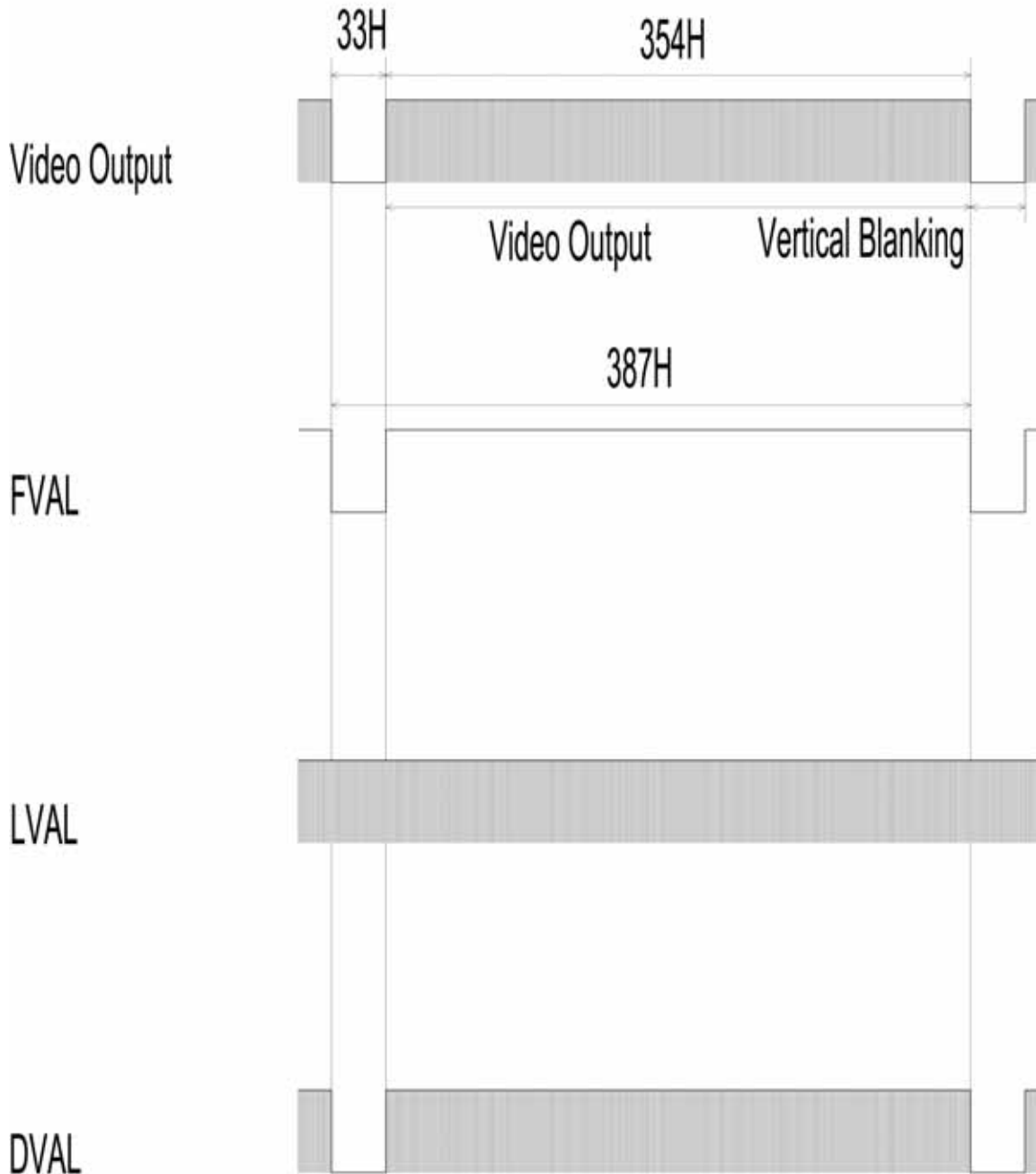
2.2.2 Full Scanning (Partial)

Frame Rate = 29.59 fps
1H = 43.0508 usecond



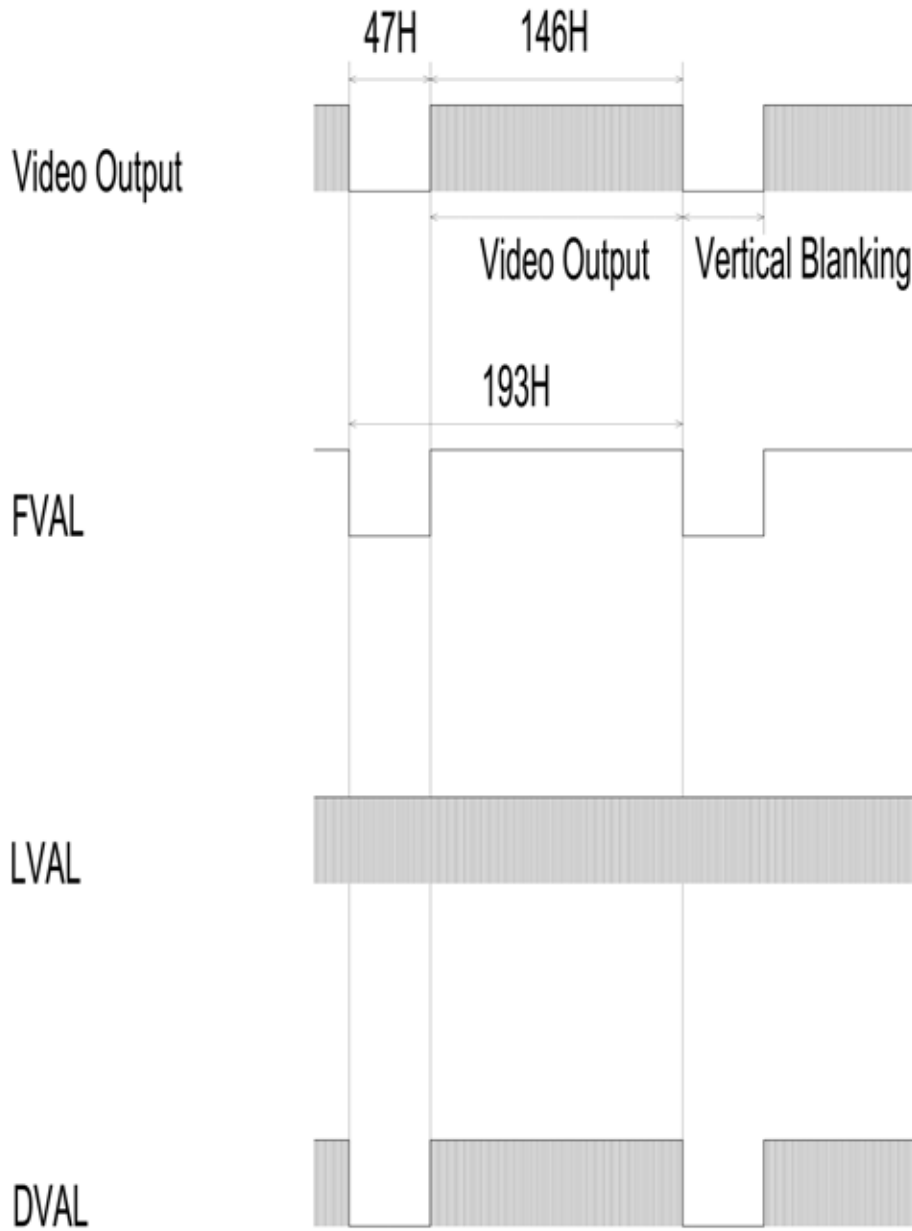
2.2.3 1/2 Partial Scanning

Frame Rate = 60.02 fps
1H = 43.0508 usecond

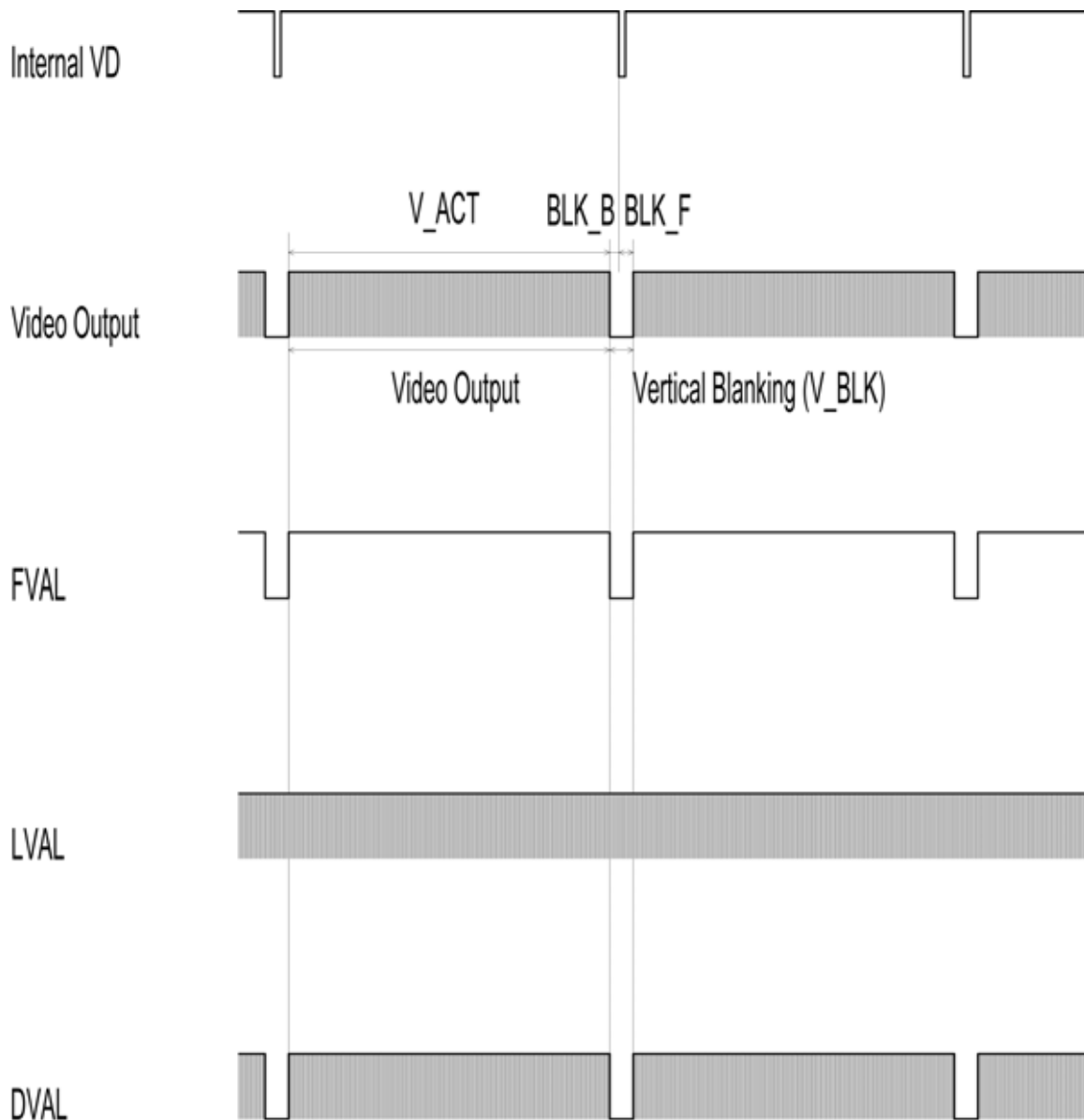


2.2.4 1/4 Partial Scanning

Frame Rate = 120.4 fps
1H = 43.0508 usecond



2.2.5 Variable Partial Scanning



The number of lines of the vertical blanking (invalid video)

1. Number of lines of the vertical blanking is changing by start line of the variable partial scanning and effective lines.

A. Command register value

Start line of the variable partial scanning X: PSR [15...0] (Command Number 24H&25H)

Effective lines Y: PWR [15...0] (Command Number 26H&27H)

B. The vertical blanking

Number of lines of the front blanking $BLK_F: ((84 * X + 707) / 1270) + 4$
(Below decimal point is advanced)

Number of lines of the back blanking $BLK_B: ((65639 - 84 * (X + Y)) / 1270)$
(Below decimal point is advanced)

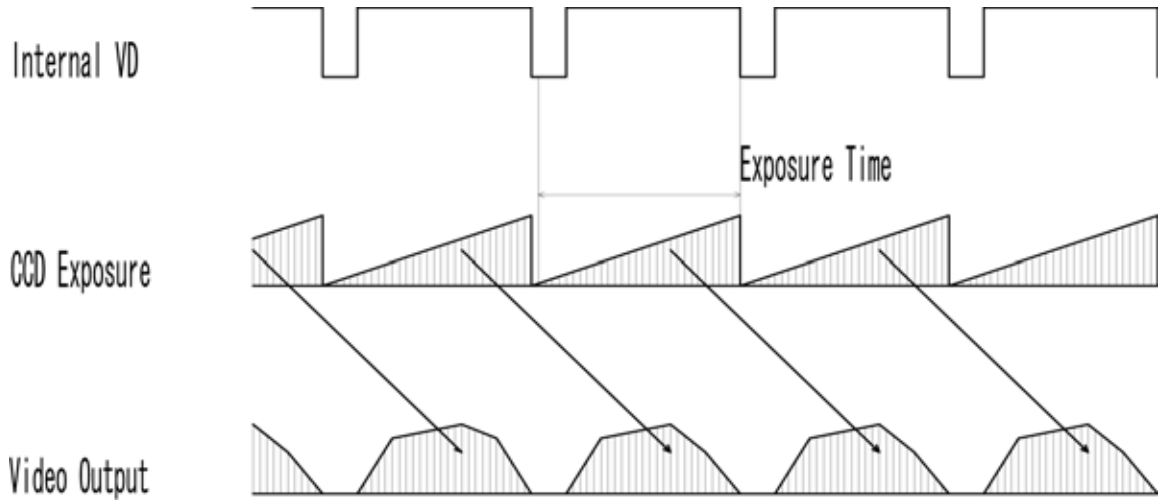
C. Actual start line of the variable partial scanning

Start line: $X + 1$

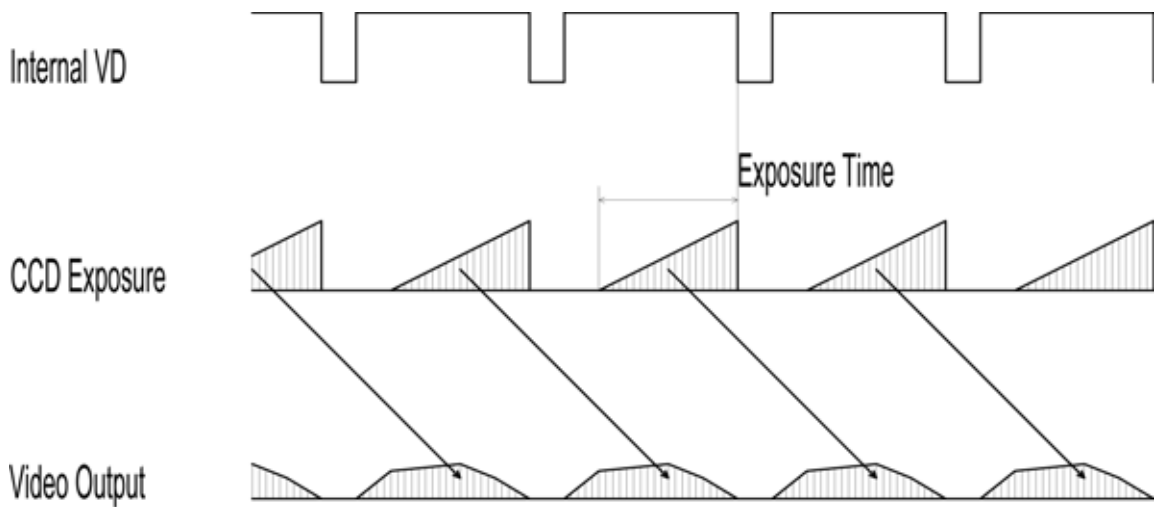
3. The Camera Mode

3.1 Normal (Continues) Mode

3.1.1 Normal Mode (Full Frame Exposure)



3.1.2 Normal Mode (Electronic Shutter)

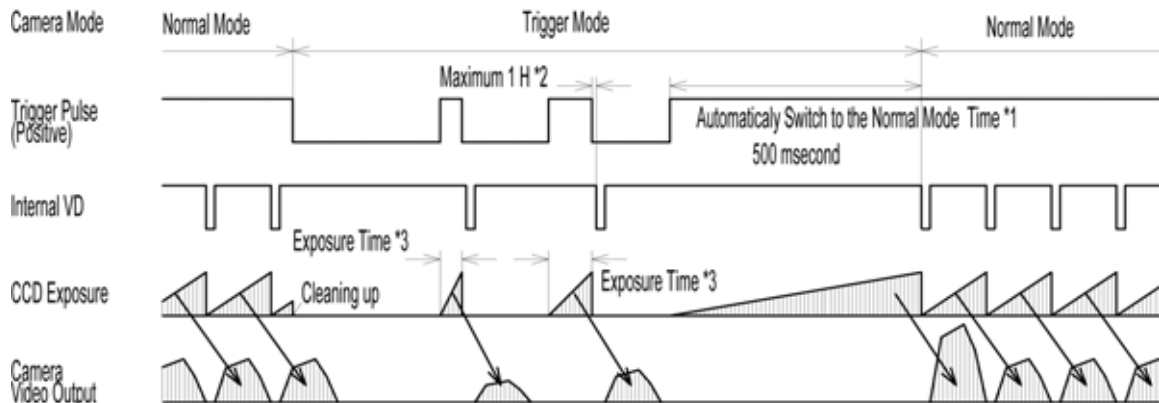


3.2 Plus Width Trigger Mode

The camera is exposed synchronize with trigger plus.

In this trigger mode, the camera starts exposing by rising edge of the trigger plus and the camera stops exposing by falling edge of the trigger plus. Exposure time is during positive polarity of the trigger pulse.

3.2.1 Plus Width Trigger Mode with V-Reset

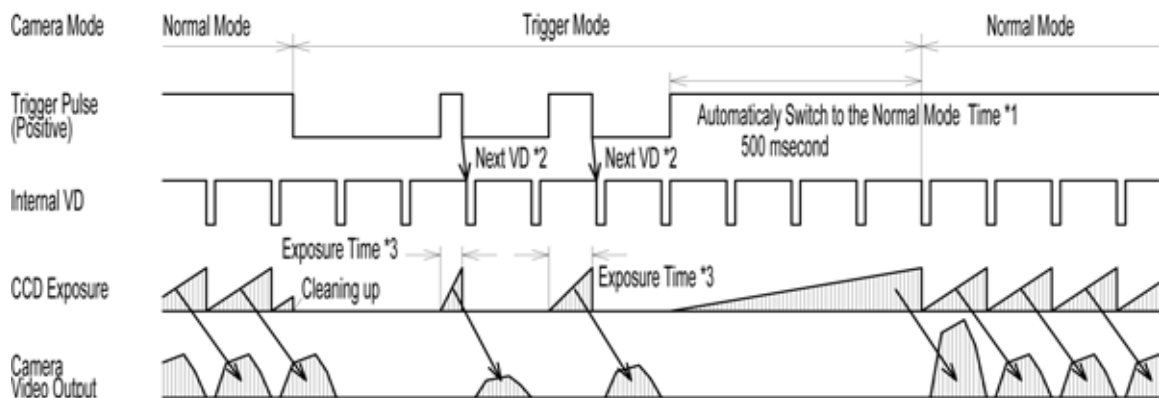


Note 1. When Long Exposure Mode is set, the camera dose NOT switch to the Normal Mode.

Note 2. Video Output is going to be Vertical reset by internal HD immediate after exposure is finished.

Note 3. Exposure Time sets by pulse width of trigger signal.

3.2.2 Plus Width Trigger Mode with Non-Reset

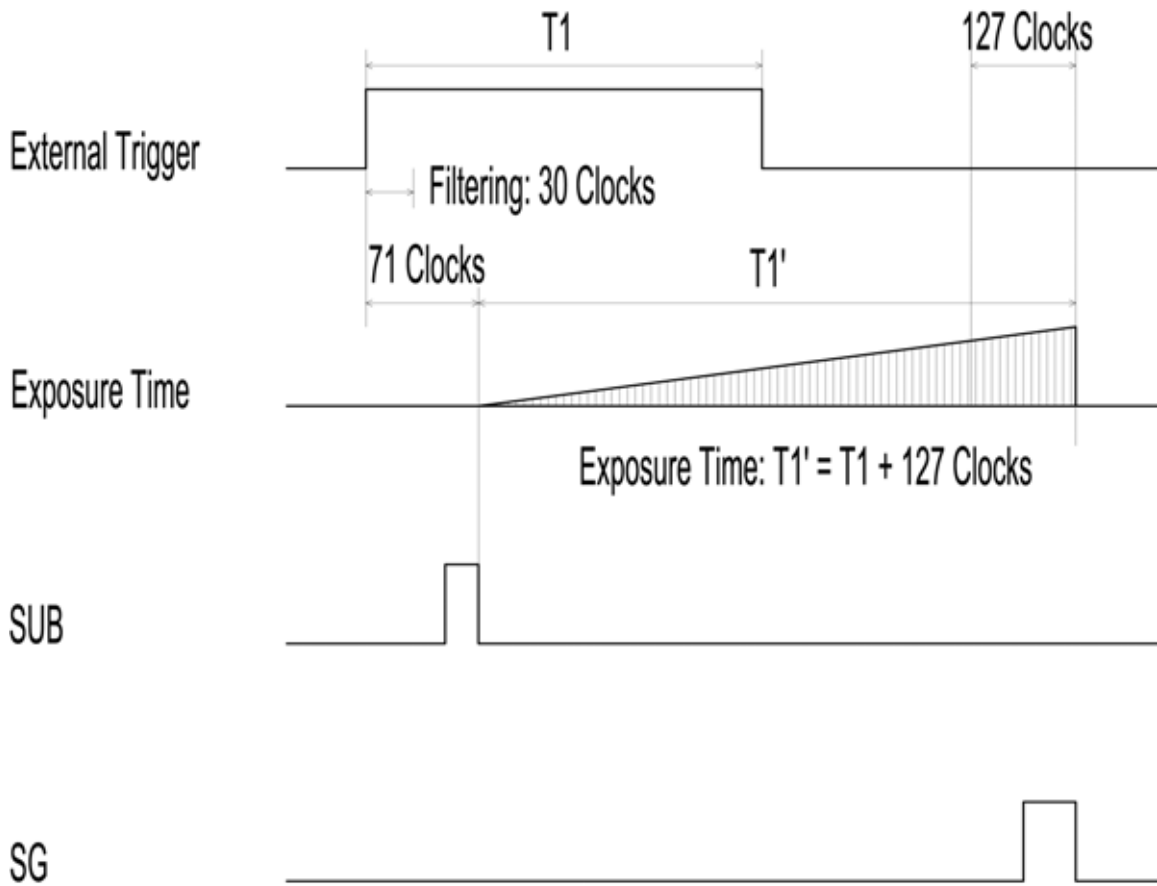


Note 1. When Long Exposure Mode is set, the camera dose NOT switch to the Normal Mode.

Note 2. Video Output is going to be Vertical reset by internal VD immediate after exposure is finished.

Note 3. Exposure Time sets by pulse width of trigger signal.

3.2.3 Exposure Timing of Plus Width Trigger Mode



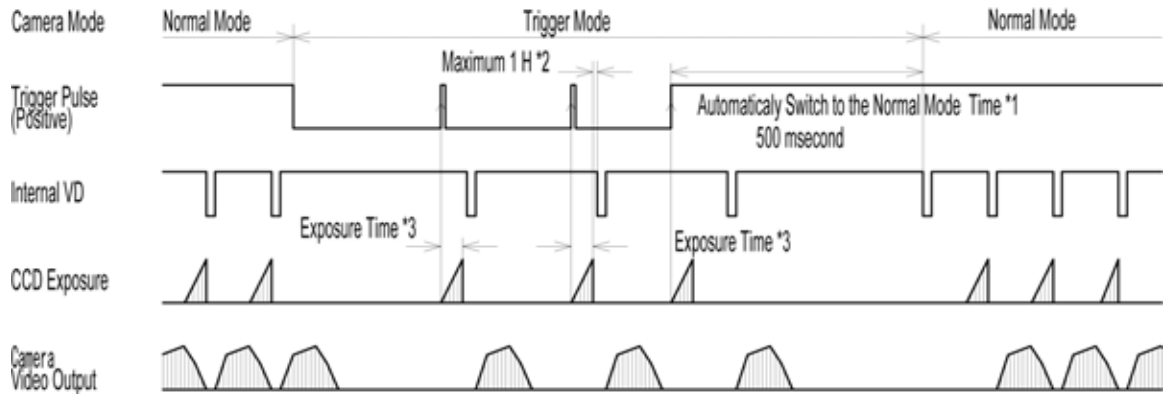
Note 1. If plus width of the trigger is less than 30 clocks, the trigger plus is removed by filtering.
 Note 2. Please input trigger plus with more than 31 clocks plus width.

3.3 Edge Preset Trigger Mode

The camera is exposed synchronize with trigger plus.

In this trigger mode, the camera starts exposing by rising edge of the trigger plus. Exposure time is set by preset electronic shutter speed.

3.3.1 Edge Preset Trigger Mode with V-Reset

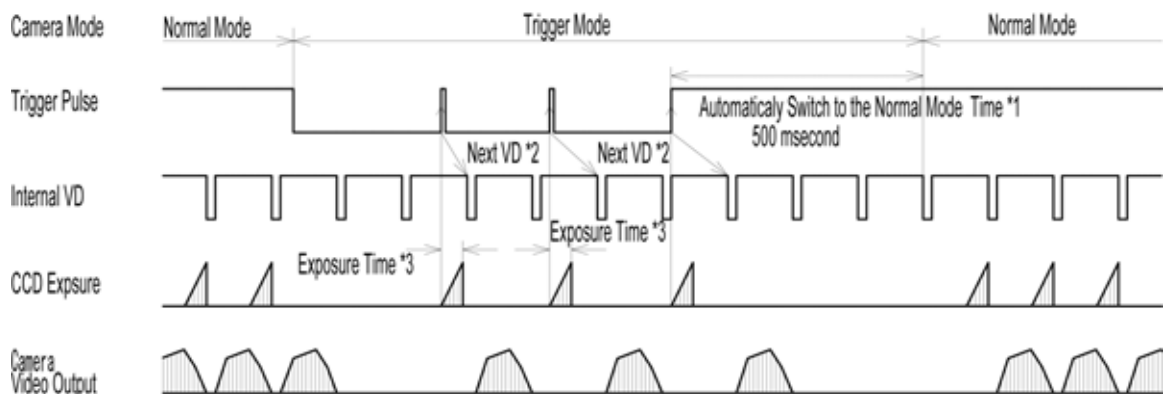


Note 1. When Long Exposure Mode is set, the camera dose NOT switch to the Normal Mode.

Note 2. Video Output is going to be Vertical reset by internal HD immediate after exposure is finished.

Note 3. Exposure Time sets by electronic shutter preset value.

3.3.2 Edge Preset Trigger Mode with Non-Reset

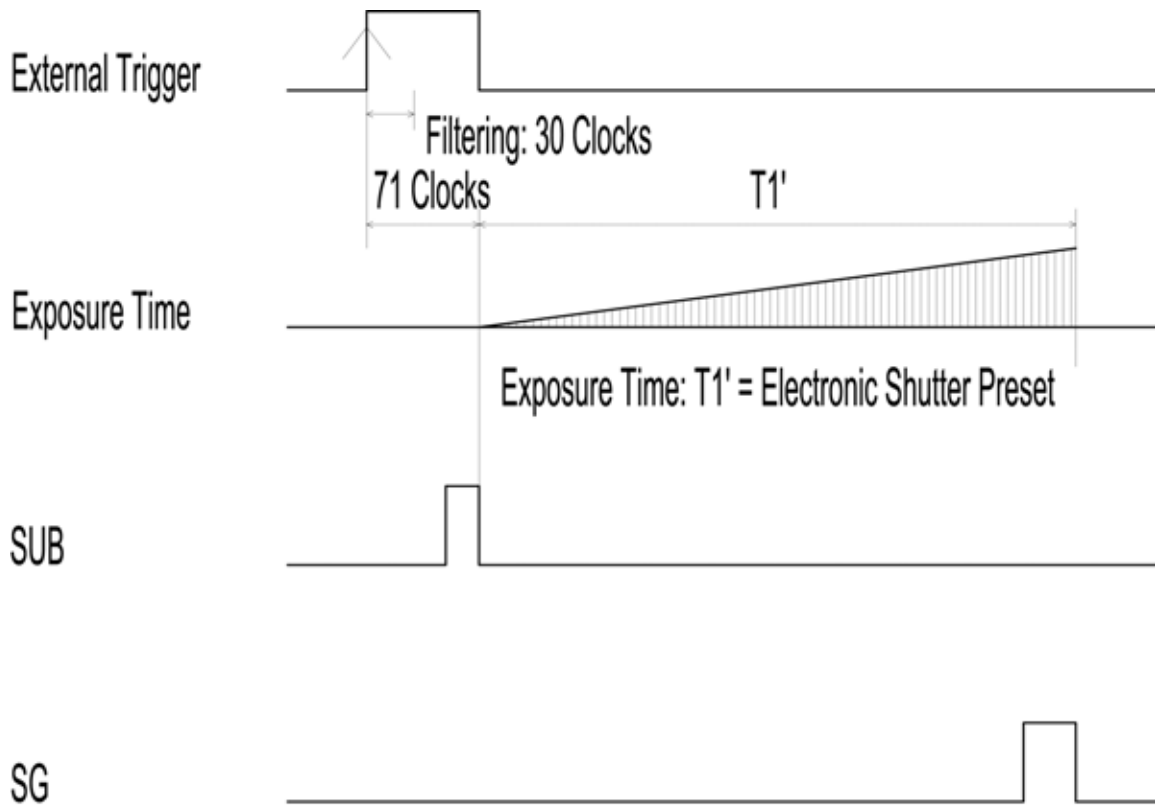


Note 1. When Long Exposure Mode is set, the camera dose NOT switch to the Normal Mode.

Note 2. Video Output is going to be Vertical reset by internal VD immediate after exposure is finished.

Note 3. Exposure Time sets by electronic shutter preset value.

3.3.3 Exposure Timing of Edge Preset Trigger Mode



Note 1. If plus width of the trigger is less than 30 clocks, the trigger plus is removed by filtering.
 Note 2. Please input trigger plus with more than 31 clocks plus width

4. Dimensions

