



# Toshiba CS3910BH Operation Manual

High-resolution ccd camera



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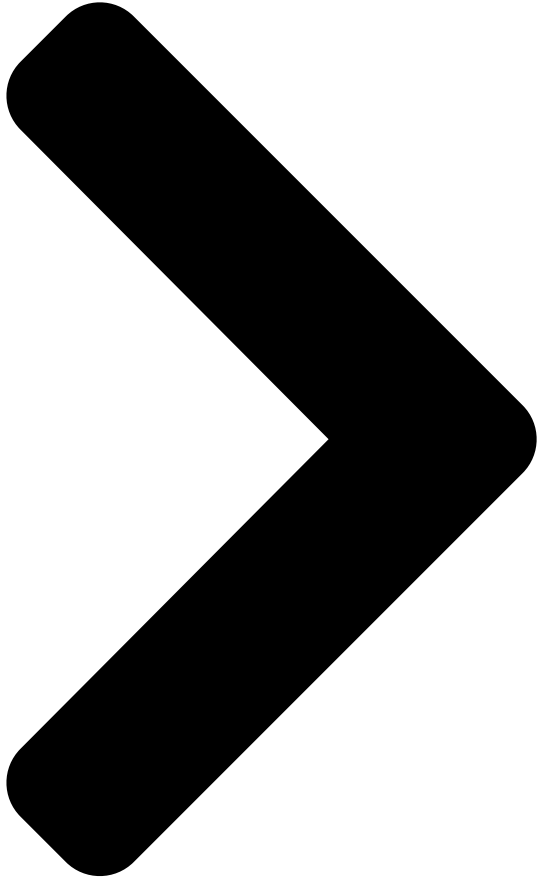
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# High-Resolution CCD Camera CS3910BH



## Operation Manual

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## Summary of Contents for Toshiba CS3910BH

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### [Page 2: Product Description](#)

CCD featuring high resolution. 2. FEATURES (1) High resolution CS3910BH features an high

picture resolution through the adoption of a MEGA-pixel CCD (Total pixel number: 1,500,000 Active pixel number: 1,450,000 [1,392(H)×1,040(V)]). (2) Square-grid Pattern CCD Pixels in this CCD are aligned in a square grid pattern. This makes it easier to perform computation correctly for image processing use.

### [Page 3: Components](#)

' 04/08/27 Ver1.01 3. COMPONENTS (1)Camera body .....1 (2)Accessories Operation manual .....1 4. OPTION DC IN Cable Model CPRC3700 Digital cable Digital video cable Tripod fixing metal 5. REAR PANEL CONNECTORS 1. DC IN/SYNC: DC+12V Power IN, Analog Video OUT, HD, VD, and TRIG IN, WEN out This connector is for connection with a power supply, image processing equipment 2.

### [Page 4: How To Mount Your Camera](#)

' 04/08/27 Ver1.01 6. HOW TO MOUNT YOUR CAMERA (1) Option 1: Camera tripod fixing kit Use a dedicated tripod fixing kit (option unit) to fix your camera onto a tripod, etc. (See the diagrammatic sketch shown below) (2) Option 2 : Mounting holes (Bottom side) Put M3 screws through screw-holes to fix the camera.

### [Page 5: Function](#)

' 04/08/27 Ver1.01 N.C. TRIG VD GND (2) DATA OUT Connector (Camera side): DX10A-36S Connector (Cable side): DX30A-36P, DX-36-CV1 (Cover) Pin. Signal name Pin. Signal name Pin. Signal name Pin. Signal name DATA0-H DATA4-L DATA9-H E.HD IN DATA0-L DATA5-H DATA9-L E.VD IN DATA1-H DATA5-L...

[Page 6](#) ' 04/08/27 Ver1.01 AGC ON/OFF SW1 SW2 (1) Read out mode setting Change internal Dip SW1(Factory setting: OFF) OFF: 15Hz All Pixel Data Readout Mode (Normal mode) ON: 60Hz High-Speed draft mode (As vertical 2 lines in 8 lines read out at the same timing...)

[Page 7](#) ' 04/08/27 Ver1.01 (a)SW Switch Function Function selection selection DATA OUT DATA External sync connector CONNECTOR selection DC IN/SYNC DATA ↔ DCIN DCIN CONNECTOR (b)SW2 Switch Function Function selection selection External sync input/output Input selection Output IN ↔...

[Page 8](#) ' 04/08/27 Ver1.01 -1 Fix mode Exposure-time (Setting with inner DIP SW) TRIG approx.5micro s (Exposure) VIDEO -2. Pulse mode TRIG+15µs TRIG 20µs 5µs CCD \*The VD is output in sync with the next HD after light-exposure...

[Page 9](#) ' 04/08/27 Ver1.01 (5) Multiple-shutter Mode Setting Exposure is done during the one frame period which comes immediately after TRIG IN. Images are output at the readout signal (E.VD) timing. If the exposure is made more than one time before the readout signal input, superposed images are output.

[Page 10](#) ' 04/08/27 Ver1.01 (5) Partial-scan Mode Setting The partial-scan ON/OFF selection is made via the rear SW1 DIP5 (Initial factory setting: OFF) OFF: Normal mode ON: 1/2 --- Screen-center 1/2 readout 1/2 readout...

### [Page 11: Specifications](#)

' 04/08/27 Ver1.01 9. SPECIFICATIONS Model CS3910BH [Electric specification] Image sensor Interline CCD Total pixel 1434(H) x 1050(V) Active pixel 1392(H) x 1040(V) Unit cell size 6.45(H) x 6.45(V) micrometer m Optical size Equivalent to 2/3 inch image pickup tube...

[Page 12](#) ' 04/08/27 Ver1.01 Pulse width: Longer than 5 micro s TTL level, Negative, Input impedance: 10k-ohm Repeating frequency 14.98Hz +/- 1 percent Pulse width: Over 1H(62.5 micro s) Trigger signal TTL level, Negative Input impedance: 10k-ohm Pulse width: Over 1H(62.5 micro s) Multiple-shutter readout signal TTL level, Negative Input impedance: 10k-ohm...

### [Page 13: Timing Chart](#)

' 04/08/27 Ver1.01 Table: Typical SRC X-axis: Wave-length Y-axis: Relative response 1000 Wavelength [nm] TIMING CHART 10-1. Digital output EIA RS644 standard (LVDS) Driver output

voltage Plus/minus 350mV (Differential output) / 100-ohm H Rate DATA 17.5ns 276CLK 122CLK 1790CLK Total clock counts: 1790CLK / 1H DATA counts: 1392CLK / 1H...

[Page 14](#) ' 04/08/27 Ver1.01 V Rate DATA A=3H B=3H C=6H D=1040H E=1046H 10-2. External sync. E.VD  $\pm 200\text{ns}$  E.HD  $200\text{ns}$  VD  $\pm 200\text{ns}$  VD  $1/15\text{Hz} \approx 65.4\text{ms}$  1046H 1H  $20\text{ns}$ ...

[Page 15](#) ' 04/08/27 Ver1.01 10-3. Read out mode \*15Hz All pixels read out 1046H (DIP-SW) (15.29Hz) CCD DATA DATA 1 0 3 8 1 0 3 9 1 0 4 0 \*60Hz High-speed draft read out 262H (DIP-SW) (60.37Hz) CCD DATA 1 0 2 8 1 0 3 3...

### [Page 16: External-View Drawings](#)

' 04/08/27 Ver1.01 EXTERNAL-VIEW DRAWING ...