Thank you for purchasing our CSB1100F CMOS camera. This operation manual includes some important information such as how to use this equipment correctly and safely. Please read through this manual carefully. After reading, keep this manual near the equipment for future reference.

TOSHIBA TELE CORPORATION
Printed On Recycled Paper.

BEFORE USE – GENERAL SAFETY INSTRUCTIONS

The operation manual contains important information for the operator (user) and/or people in the vicinity to avoid personal injury, or property damage.

1. Operation

- Do not operate the equipment in a location subject to water splashes, or of water or foreign matter, if the equipment is dropped or malfunction, fire or electric shock may result.
- Do not disassemble, repair, or modify the equipment.
- Do not install the equipment in an unstable or inclined location or locations subject to high moisture, oil fumes, steam, or dust.
- Do not place anything on the equipment. As an electrical shock may result. If you shoot thin stripe patterns, moiré patterns (interference fringes) may appear. This is not a defect.

2. Features

- Electrically operated. The CSB1100F features a high-pixel CMOS sensor (Total pixel count: 1.30 Mega pixels), enabling high-density images (i.e., significantly reduced noise and low-to-sharp images) to be obtained.
- (Global shutter mode) This feature starts light-exposure in synchronization with external trigger signal, and enables high-speed image processing. By designating horizontal and vertical addresses, user-defined areas only are read out.
- (High-dynamic range) This feature allows high contrast image capture with integrating charge in the sensor, providing high accuracy.

3. Configuration

The decision to use the equipment in the conditions or environments, given consideration to its performance and safety, is left to the user. CSB1100F is a device for external trigger, and makes use of high-speed signal transmission. The following conditions can be set:

(1) IEEE1394 Connector Digital data IN/OUT terminal
(2) Power supply terminal
(3) Multi slope function
(4) Optional parts
(5) 7-function trigger
(6) No-load signal out
(7) Timebase
(8) Trigger out
(9) VID signal
(10) RS232C
(11) RS422
(12) TTL
(13) 10 Base-T/100 Base-TX

4. Optional parts

(1) IEEE1394 Cable
(2) Camera mounting kit (Model name: CT1100U)
(3) Trigger line input module (Model name: TC01)
(4) IEEE1394 interface board

5. Designation of each Part

6. Mounting the camera

There are various methods of using the camera. Choose from among the following options.

(1) Mounting the camera
(2) Use an optional tripod fixing kit (1/4-20UNC) to fix the camera onto the tripod. Use connected power supply may result in the electric shock.

7. Connection

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- Do not place anything on the equipment. As an electrical shock may result. If you shoot thin stripe patterns, moiré patterns (interference fringes) may appear. This is not a defect.

8. Function

(1) Electronic shutter
- The shutter speed of CSB1100F is also manually adjustable. By manipulating the internal register setting value of CSB1100F, you can change the shutter-speed by user-defined setting value of 62.5 ms to 1 sec.
- The shutter control is set by the user using the following applications:

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CMOS sensor characteristics

- Defective pixel
- A CMOS image sensor is composed of photo sensor pixels in a square grid array. Due to the characteristics of CMOS image sensors, over- or under-driving of the pixels results in temporary white or black areas (these are noises) appearing on the screen. This phenomenon, which is not a defect is exacerbated under higher temperature and long exposure times.

- Image noise

Under global shutter operation, the brightness of the upper part of the screen may differ from the lower part. And, the brightness of the left part on the screen may differ from the right part. However, this does not mean the CMOS image sensor is defective.

- Accumulation of dust inside the equipment may result in fire or electric shock.

- Do not disassemble, repair, or modify the equipment.
- Do not install the equipment in an unstable or inclined location or locations subject to high moisture, oil fumes, steam, or dust.
- Do not place anything on the equipment. As an electrical shock may result. If you shoot thin stripe patterns, moiré patterns (interference fringes) may appear. This is not a defect.

- Always perform the connections, turn off power
- When disposing of the camera, it may be necessary to dispose it into separate parts, in accordance with the laws and regulations of your country and/or municipality concerning environmental conservation.
9. Specification

[Electronic specifications]

- Image sensor: CMOS image sensor
- Total pixel: 1280(H) x 1024(V)
- Active pixel: 1280(H) x 1024(V)
- Pixel size: 6.75 (H) x 6.75 (V) μm
- Image area: 4.338 (H) x 3.456 (V)
- Driving frequency: 32.316 MHz
- Scanning line: 1024 lines
- Frame rate: Progressive
- Scan system: Internal
- Aspect ratio: 1:4
- Subject illumination: 300 lux (3000K) (Exposure time: 62.5 μs per sec)
- Video input: Approx. 62.5 μs
- Interface: Complies with IEEE Std. 1394a-2000
- Transfer speed: 400 Mbps
- Video mode: Format/Signal format in WDI/Mono Ball
- Protocol: Conforms to 1394a-based Digital Camera Specification ver 1.3
- Input signal: TRIG (Shutter TRIG) 3.3 V CMOS level
- Scan memory: Fruing edge detection
- Pulse width: Minimum: 5 μs per sec
- Max: no limit
- Electronic shutter: Shutter speed (preset inside the camera) selection via communication command 1 through 4000 (approx. 62.5 μs per sec through 1 sec)
- Shutter mode: Global shutter
- Random Trigger: Selectable
- Shutter preset: Shutter speed preset selectable via external trigger input
- Shutter speed: Conversion of preset speed
- Shutter: Shutter speed preset by preset inside camera
- Shutter: Shutter can be controlled via shutter trigger pulse width
- Camera: Starts exposure at the falling edge timing at the rising edge timing
- DC-5V through 105-5V (IEEE 1394 cable power supply)
- Power supply: Approx. 1.5W (at 120V)
- Power condition: Approx. 1.6W (at 230V)
- Power condition: Approx. 1.4W (at 48V)

[Mechanical Specification]

- External dimension: 44.0 x 39.0 x 12.0 mm (excluding projection)
- Weight: Approx. 120 g
- Lens mount: C-Mount
- Chassis grounding: Continuously provided between Connector shell and FG
- Chassis grounding: Continuity provided between FG and SG

[Environmental conditions]

- Ambient temperature: Performance guaranteed: From -10 to 60 degrees Celsius
- Operation guaranteed: From 0 to 50 degrees Celsius
- Preservation: From -10 to 50 degrees Celsius
- Performance guaranteed: From -10 to 50 degrees Celsius
- Operation guaranteed: From 0 to 50 degrees Celsius
- Preservation: From -10 to 50 degrees Celsius
- Humidity: Up to 95% (No condensing)

[Interface specification]

Please consult our sales person about interface specification.

10. Timing Chart

[10. Normal shutter mode (Format 7 mode 0)]

- Normal shutter mode (Format 7 mode 0)
- Exposure time: Exposed to shutter setting
- Video data output
- Frame rate: Exposed to shutter setting

[20. Random Trigger Shutter mode (Fa mode, Format 7 mode 0)]

- Random Trigger Shutter mode (Fa mode, Format 7 mode 0)
- Exposure time: Depends on trigger pulse width
- Video data output

[30. Random Trigger Shutter (Pulse width control, Format 7 mode 0)]

- Random Trigger Shutter (Pulse width control, Format 7 mode 0)
- Exposure time: Depends on trigger pulse width
- Video data output

[40. Scalable (pulse control, Format 7 mode 1)]

- Scalable (pulse control, Format 7 mode 1)
- Exposure time: Depends on trigger pulse width
- Video data output

[50. WDI mode (Fa mode, Format X)]

- WDI mode (Fa mode, Format X)
- Exposure time: Depends on trigger pulse width
- Video data output

[60. WDI mode (Fa mode, Format X)]

- WDI mode (Fa mode, Format X)
- Exposure time: Depends on trigger pulse width
- Video data output

[70. WDI mode (Fa mode, Format X)]

- WDI mode (Fa mode, Format X)
- Exposure time: Depends on trigger pulse width
- Video data output

11. External View

[11. External View]

- External view of the product
- This symbol is applicable for EU member states only

The use of the symbol indicates that this product may not be treated as household waste. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about recycling of this product, please contact your supplier where you purchased the product.