FULL 4K VARIABLE FRAME RATE CAMERA

FT-ONE/FT-ONE-OPT

Award winning: Government Video magazine “2013 Government Video Salute Award”
Motion Picture and Television Engineering Society of Japan “MPTE Award 2013”
“Technology Development Award 2012”
BIRTV 2013 China “BIRTV 2013 Award”
TV Technology Europe “STAR Award 2012”
TVB Europe “Best of IBC 2012”
The ultimate 4K solution for super-slow motion

The world’s first* high-speed camera designed for super-slow-motion acquisition at 4K resolution (4096 × 2160 pixels) up to 900 frames per second (fps). The FT-ONE incorporates the groundbreaking FT1-CMOS, a global shutter CMOS color sensor which was developed by FOR-A to provide superior resolution and sensitivity. RAW material is recorded at high speed to the internal RAM memory, which holds nearly 10 seconds of 4K content shot at 900 fps. For convenience, material can then be transferred to optional internal SSD cartridges. Unleash your creativity with this unprecedented innovation in super-slow-motion video at 4K resolution.

*According to internal research as of May 2012.
FT-ONE Highlights

Advanced FT1-CMOS sensor

- Equipped with Full 4K high-sensitivity CMOS color sensor FT-1CMOS.
- Equivalent in size to that of super 35 mm sensors.
- Offers outstanding sensitivity, responsiveness, resolution and transfer speed.
- Fast 900 fps shooting at 4K (2000 fps shooting at HD mode)
- Material is stored in internal memory in real time.
- The frame rate is also adjustable (24 fps min. base level).
- 11-stop dynamic range. ISO 640 sensitivity ensures stable, extremely low-noise results.

Global shutter system

- Counteracts rolling shutter artifacts that might otherwise occur with fast motion.
- Capture instantaneous subject movement in crisp detail at 4K resolution.

Simultaneous 4K recording/playback

<FT-ONE>

- Real-time 4K output. Auto-switched from real-time output to playback when slow motion playback.
- 3G-SDI x 4 output for 4K resolution
- HD-downconverted VF OUT and AUX output
- Menu can be displayed on VF OUT.

<FT-ONE-OPT>

- 2-ch simultaneous 4K (QFHD) output (CH A and B)
- CH A for live, and CH B for slow motion playback output.
- Output for return RET 1, RET 2 as well as VF OUT and AUX output.

Model with Fiber-Optic Connectivity

FT-ONE-OPT

- Inheriting the features of FT-ONE, offers the extra mile by carrying camera signals much farther via optical cable.
- Base station FT-1BS can power the FT-ONE-OPT (max. distance: 1 km)
- Supports genlock signals
- Intercom for broadcast scenarios or emergencies
- Switchable output: VF OUT, RET 1/2

HD capturing mode (FT-ONE-OPT)

- Max. 1670 fps in 1920x1080 resolution, and max. 2000 fps in 1920 x 888 resolution.
- 4 outputs of each CH A and CH B. OUT 1 and 2 for HD-SDI, and OUT 3 and 4 for 3G-SDI.

Others

- Genlock input
- 12-axis color correction
Options

SSD Cartridge
FT-ONE2T/FT-ONE-1TL

- Transfer material recorded on the FT-ONE to an SSD cartridge.
- One FT-ONE2T cartridge holds up to 84 seconds of material.
- An economical cartridge with half the capacity is also available: FT-ONE-1TL.*
- The FT-ONE accommodates two cartridges which can hold nearly 3 minutes of material in all.
- Switch the hot-swappable cartridges as needed when shooting.

An economical cartridge with half the capacity is also available:
One FT-ONE2T cartridge holds up to 84 seconds of material.

Cartridge Docking Station
FT-1CDS

- Provides USB 3.0 connectivity between the FT-ONE SSD Cartridge (FT-ONE2T or others) and a computer.
- Copy material from the SSD cartridge directly to storage on the computer or to an attached HDD or SSD
- Color gamut adjusting, 3D-LUT creating, and easy computer-based playback of material on the SSD cartridge
- Can be used outdoors when powered via the IDX battery mount.

Remote Control Unit
FT-1RU/RUA

- Includes direct recording and playback buttons, as well as a rotary encoder and touch-panel for a range of settings.
- Facilitates camera setup, recording, and playback.
- FT-1RUA with a playback controller with a fader control

Remote Control Panel
FT-1RCP/FT-1RCP-J

- Real-time remote image adjustment for FT-ONE material.
- Efficient, intuitive adjustment via dedicated buttons for iris, pedestal, gain, and other settings.
- In conjunction with the FT-1RU, offers powerful support for FT-ONE cameras.

4K Extraction System
ZE-ONE

Frame and extract specified HD scenes at any size from 4K sources using an intuitive touch-screen interface*. To simulate zooming, dynamic zooming effects at key points and in various sizes can be specified in slow-motion instant replays from the FT-ONE high-speed 4K camera. Enjoy unprecedented creative freedom in replays of live sports coverage and other applications.

- Extract HD (1080i or 720p) output from QFHD (1080p × 4) input
- Isolate and enlarge the action in scenes
- Easy touchscreen-based framing and extraction
- Smoothly zoom in or out
- Compatible with FT-ONE high-speed 4K cameras
  - Simulate dynamic and flowing camera-work by setting desired replay extraction points and frame sizes
  - Perfect for capturing the excitement by zooming in to the action in slow-motion replays
- Includes an embedded audio delay processor (16 channel)

DPX Converter
FT-1READ

Converting 12-bit RAW data on the FT-ONE SSD cartridge to a common file format for editing or color grading purposes.

Base Station
FT-1BS

- Base station for fiber-optic connectivity.
- Supplies power to the FT-ONE-OPT with max. distance of 1-km.
- Simultaneous video transfer of 2-ch 4K and 2-ch HD. The intercom system (clear-com, 2W/4W, RTS) contains 2-ch PGM and standby income.
FT-ONE/FT-ONE-OPT Workflow

Live Production Workflow (FT-ONE-OPT)

- Connects FT-ONE-OPT and FT-1BS with optical fiber (for standard HD camera)
- Power supply and signals of captured video, return-video, incomes and other peripherals are all transferred via the optical fiber.
- FT-ONE-OPT and FT-1BS simultaneously output live and slow-motion playback.
- Records and plays with remote control unit FT-1RU or FT-1RUA.
- Video effect of gain and pedestals controls with remote control panel FT-1RCP or FT-1RCP-J.
- 4K to HD extraction available with ZE-ONE when slow-motion playback

DI (Digital Intermediate) Workflow (FT-ONE/FT-ONE-OPT)

- Easy Previewing with 4K and HD outputs on FT-ONE
- Copying of FT-ONE captured video data from SSD cartridge to PCs (transform DNG to DPX when copying)
- 3D-LUT creation with captured video color chart available by FT-1READ.
- Proxy video generation for off-line editing, DNG or DPX file attached to time-code.
- EDL data generated at off-line editing sent to color grading and online editing.
Exterior/Parts Guide

Note: Unlabeled interfaces are not used (only for maintenance)

### FT-ONE

- **Trigger**
- **Tally output**
- **PL mount**
- **Lens control**
- **Mic input**
- **Power (ON/OFF)**
- **Camera control (from left)**
  - AUTO WHITE/BLACK
  - Exposure
  - Knee/Bars
  - White Balance
- **Select button**
- **SSD access LED**
- **Menu**
- **Trigger**
- **User profile buttons (1/2/3)**
- **Focus check**
- **Marker display**
- **Playback control: REV PLAY/STOP/PLAY**

### FT-ONE-OPT: Model with Fiber-Optic Connectivity

- **Optical Condition**
- **Standby Income Condition**
- **Income 1**
- **Income 2**
- **Optical Fiber Connection**
- **Phone OUT**
- **DC OUT**
- **Ret 1, 2 OUT**
- **Channel A OUT**
- **Channel B OUT**
- **GENLOCK IN**
- **VF OUT**
- **AUX OUT**
- **3G-SDI OUT (1/2/3/4)**
- **GPI VF**
- **Audio IN**
- **DC power supply (12 to 17 V)**
- **TALLY(R & G)**
- **Head Set**
- **GPI REMOTE**
- **SYNCHRO**
- **PREV**
- **NEXT**
- **PULSE**
- **CAMERA**
- **SYNC**
- **10/100/1000 BASE-T/ TX**
- **Ethernet**
- **GPI Audio IN**
- **DC power supply for remote unit connection**

### FT-1BS: FT-ONE-OPT Base Station (optional)

- **Optical Condition**
- **Standby Income Condition**
- **Income 1**
- **Income 2**
- **Optical Fiber Connection**
- **Phone OUT**
- **DC OUT**
- **Ret 1, 2 OUT**
- **Channel A OUT**
- **Channel B OUT**
- **GENLOCK IN**
- **VF OUT**
- **AUX OUT**
- **3G-SDI OUT (1/2/3/4)**
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### FT-ONE External Dimensions

- **Front**
- **Left side**
- **Rear**

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- **122.2**
- **232**
- **392.7**
- **123**
- **127**
- **964**
- **1277**
- **877**
- **260**
- **215**
- **230**
- **65**
- **480**
- **21.2**
- **93.6**
- **21.2**
- **44.7**
- **66.9**
- **81.9**
- **97.4**
- **103.5**
- **167**
- **16**
- **177**
- **8**

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### Specifications

**Full 4K Variable Frame Rate Camera**

**FT-ONE-OPT**

**Frame rate / standard recording time / Video clip size**

<table>
<thead>
<tr>
<th>Frame Rate</th>
<th>Standard recording time</th>
<th>Video clip size</th>
</tr>
</thead>
<tbody>
<tr>
<td>4K High</td>
<td>120 fps</td>
<td>1920 x 1080 pixels</td>
</tr>
<tr>
<td>4K Variable</td>
<td>1/50 sec to 1/250 sec</td>
<td>1920 x 1080 pixels</td>
</tr>
<tr>
<td>4K Low</td>
<td>30 fps</td>
<td>1920 x 1080 pixels</td>
</tr>
<tr>
<td>4K Slow</td>
<td>30 fps</td>
<td>1920 x 1080 pixels</td>
</tr>
</tbody>
</table>

**Audio Input**

- Audio input on SDI outputs
- No audio recording on camera or SSD cartridge.

**Audio Output**

- Embedded Audio: 2 ch (stereo pair, 48 kHz, balance)
- Headphone: 4.5 mm stereo mini-jack x 1 (1 stereo pair)

**Lens**

- 150°, 57-5, Yangsan-ro, Yeongdeungpo-gu, Seoul 150-103, Korea
- 2nd Floor, Valecha Chambers, Link Road, Andheri (W), Mumbai 400053, India
- 59.9 sec.
- 232 (W) x 294 (H) x 392.7 (D) mm
- 59.9 sec.

**General Specifications**

- 232 (W) x 294 (H) x 392.7 (D) mm
- 59.9 sec.
- 232 (W) x 294 (H) x 392.7 (D) mm
- 59.9 sec.

**Camera Section**

- 150°, 57-5, Yangsan-ro, Yeongdeungpo-gu, Seoul 150-103, Korea
- 2nd Floor, Valecha Chambers, Link Road, Andheri (W), Mumbai 400053, India
- 59.9 sec.
- 232 (W) x 294 (H) x 392.7 (D) mm
- 59.9 sec.

**Conventional Recording**

- 232 (W) x 294 (H) x 392.7 (D) mm
- 59.9 sec.
- 232 (W) x 294 (H) x 392.7 (D) mm
- 59.9 sec.

**Mechanical Specifications**

- 232 (W) x 294 (H) x 392.7 (D) mm
- 59.9 sec.
- 232 (W) x 294 (H) x 392.7 (D) mm
- 59.9 sec.

**Other Specifications**

- 232 (W) x 294 (H) x 392.7 (D) mm
- 59.9 sec.
- 232 (W) x 294 (H) x 392.7 (D) mm
- 59.9 sec.