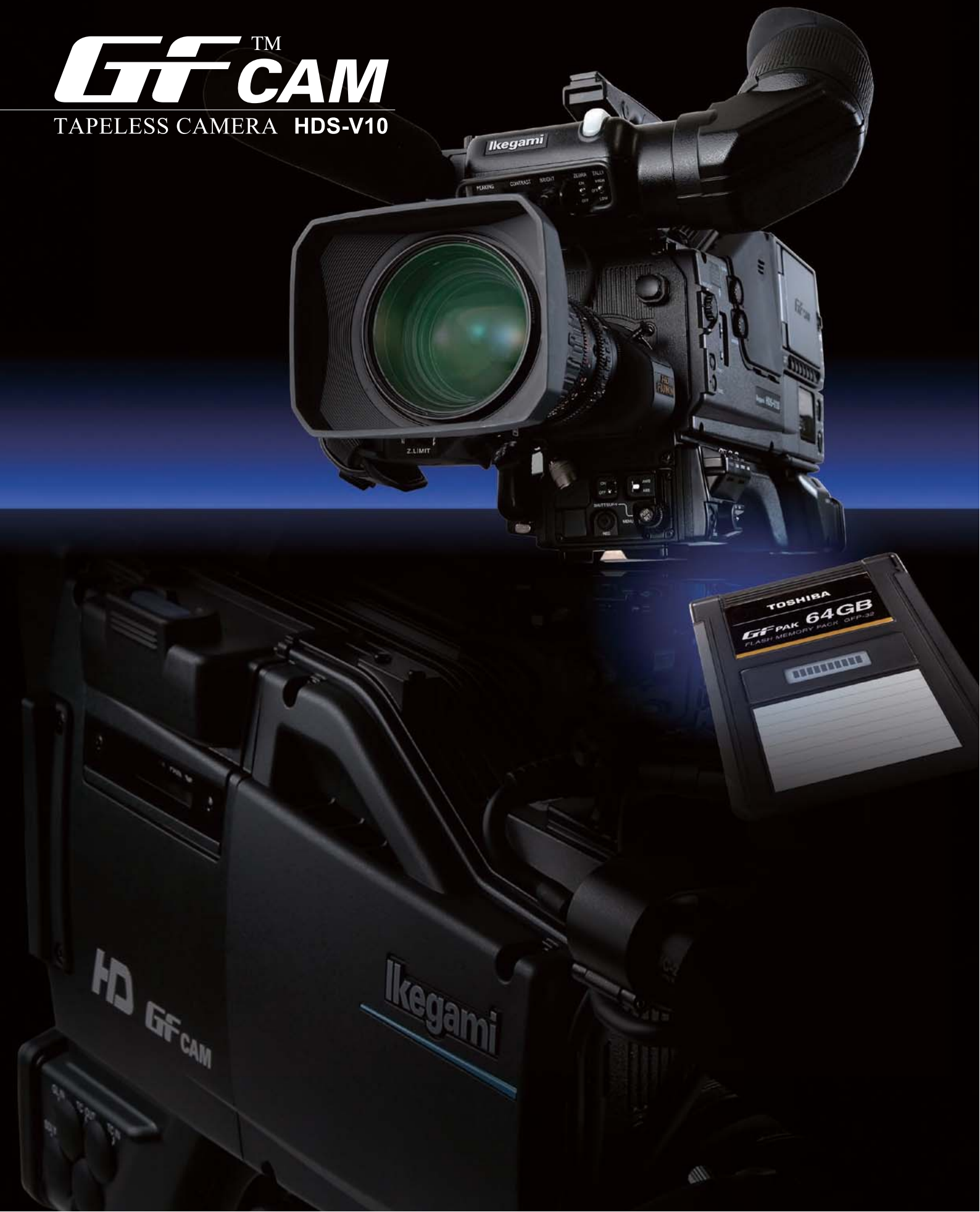
Ikegami

TOSHIBA
Leading Innovation

GF CAM™

TAPELESS CAMERA **HDS-V10**



Concept

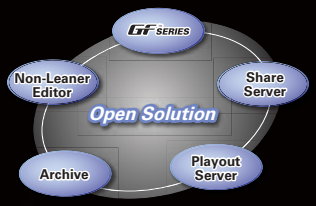
FLASH MEMORY TECHNOLOGY

High speed, non-volatile, semiconductor devices (Flash RAM) are used for the recording media. Better than average reliability is achieved by the use of advanced Flash Memory technology such features as Memory Management, Error Correction (ECC) and Wear-Leveling.

- High Capacity NAND Flash Memory (SLC)
- High Speed Random Access
- Overwrite: 100,000 times and 10 years over Archive Life
- Superb durability against vibration and impact because of no moving parts inside.

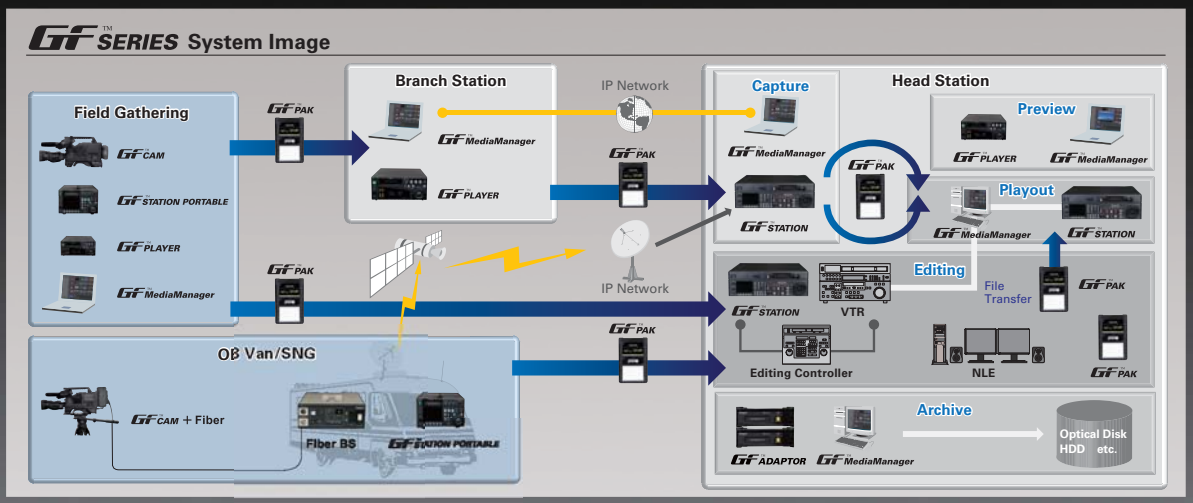
OPEN SOLUTION

The GF series is designed around the popular MPEG-2 HD LONG GOP 50Mbps/I frame 100Mbps Codec and MXF File Format, which conforms to SMPTE Standards and assures compatibility with Non-linear Editor (NLE), and various tapeless systems.

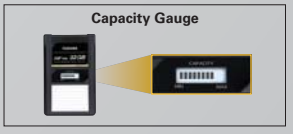


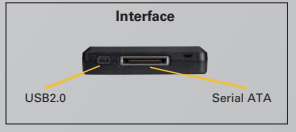
WORKFLOW INNOVATION

By incorporating an open MPEG2 MXF compression format and the high speed data access capabilities of FLASH RAM, the GF series products integrate easily into today's file based workflows. The Gigabit Ethernet connectivity of the GFSTATION™, GFSTATION™ PORTABLE, and GFPLAYER further enhance the ability to provide faster than real time file transfer over currently used network infrastructures.



FLASH MEMORY PACK GF™ PAK





GFPAK™ media is available in three capacities, 16GB/32GB/64GB. High speed data transfer, recording, and playback are achieved via the on-board SATA connector which complies with life-cycle testing of at least 30,000 cycles.

An industry standard USB 2.0 interface is also used for direct connection to PC devices.
A Bistable Nematic LCD display is included to indicate remaining available capacity of the GFPAK™. This unique LCD display does not require any power to be visible, thus the GFPAK™ does not contain an internal battery.

■Recording Time (Unit: Minutes)

Capacity	MPEG-SD			MPEG-HD	
	I frame 30Mbps	I frame 40Mbps	I frame 50Mbps	LONG GOP 50Mbps	I frame 100Mbps
GFP-16 16GB	50 min.	37 min.	30 min.	30 min.	15 min.
GFP-32 32GB	100 min.	75 min.	60 min.	60 min.	30 min.
GFP-64 64GB	200 min.	150 min.	120 min.	120 min.	60 min.

Makes HD Production Circumstance clear and functional

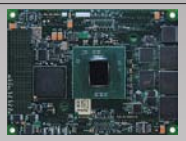
GF™ INNOVATION

1920 x 1080 (1080i) Full HD
1280 x 720 (720p) Full HD
4:2:2 Digital Component REC/PLAY
2000lx/F11 S/N58dB

GF™ CAM
TAPELESS CAMERA **HDS-V10**

1920 x 1080(1080i) Full HD / 1280 x 720 (720p) Full HD 4:2:2 Digital Component Recording

Adopts MPEG-2 4:2:2P@HL Codec for video compression. LONG GOP 50Mbps or I frame only 100Mbps are selectable and support full HD(1920 x 1080[1080i], 1280 x 720[720p]. HDTV REC/PLAY at 4:2:2 color sampling reproduces superb HDTV video to ensure high quality News Production. Not only high quality video, but also uncompressed Audio (Stereo), Time code and Metadata can be recorded.
Moreover, the latest programmable DSP technology allows future upgrade of the Codec to adopt to new compression systems. This feature insures future proofing of the GF series product.

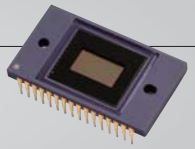


Programmable DSP

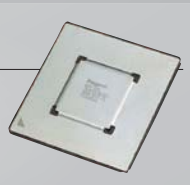
Low Noise and High Sensitivity

Employs 2/3-inch CCD's at 2.3M pixel for 1080i* or 1.0M pixel for 720p*. Video processing technology adopted from Ikegami's Hi-end HD Studio cameras achieves superb video reproduction. Low noise S/N: 58dB and high sensitivity 2000lx/F11 specifications, combined with unique video processing technology which makes noise inconspicuous as compared to traditional methods . And up to 1 second frame accumulation expands shooting opportunity in the harsh environment.

*Two Camera Versions are Available



2.3M Pixel CCD(1080i)



Digital Process LSI, ASIC

Inconspicuous noise at the gain-up

Unique video processing combining analog gain-up and digital gain-up makes noise inconspicuous and provides low noise video reproduction.

+54 ~ -3dB gain-up selectable

Custom video processing circuit insures true color reproduction under high gain conditions for superior low light performance. Selectable gain steps from -3dB to +54 dB Hyper gain are provided for field versatility. An optional -6dB gain position provides higher S/N ratio when operating under extreme highlight conditions, thus expanding flexibility during field operations.

ENG Conscious Mobility and Operability

Quick Start Recording

Recoding starts within 3 seconds after power-on to minimize loss of fast action material.

Recording starts ❶ •• ❷ •• ❸ within 3 seconds

PAK-less Recording

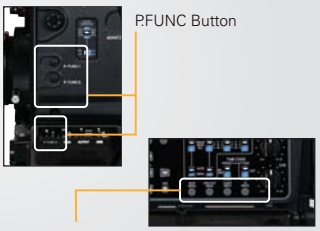
Employs internal cache memory.
Video images along with audio and time code are recorded to an internal cache memory before being sent to the GFPAK™. Cache recording continues after the GFPAK™ is removed and is transferred once a fresh GFPAK™ is inserted allowing for "Hot Swapping" of the GFPAK™ media.
Up to 25 seconds of PAK-less recording insures continuous video capture without breaks in content or time code.

Additional Recording Features

Retro-loop Recording : By using the internal cache memory, up to 25 seconds video can be recorded before pressing REC button.
Loop Recording : Continuous recording with single GFPAK™.
Time Lapse Recording : Variable record interval and frequency for time lapse capture.
Animation Recording : Single video frames are recorded for each push of the REC button.

Quick Setup

Dedicated switches as well as programmable P. FUNC (personal function) buttons provide direct access to commonly used menu items to speed set-up time.
Master reference and scene file type data are easily stored in any of 10 User Files for quick selection of pre-programmed video "Looks".
User File data is retained in camera head memory and can also be imported / exported to external FLASH memory via the on-board USB 2 port.



Good Weight Balance

Precision weight balance is achieved by both the designed lower center of gravity camera head, and an adjustable, concave surface shoulder pad. Proper balance insures stable recorded video images, and less operator fatigue.

SP-002(Slide Type: Standard) SP-001(Fixed type: Option)

Light Weight and Durability

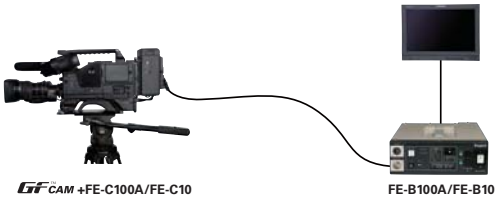
The magnesium alloy camcorder body provides light weight operability and strong, long life durability to hold up under the harsh rigors of News gathering field operations. GFPAK™ media is designed for greater immunity to vibration, impact, and temperature variation than that of existing spinning disc, or previous tape type media.

Use with Existing Ikegami Camera Systems and Accessories

Studio Application with Fiber Extension System

By attaching FE-C100A/FE-C10 Fiber Camera Adaptor, HD-SDI and 2-ch Audio signals can be transmitted up to 2km. FE-B100A/FE-B10 Base Station can transmit RET(HD-SDI), Intercom, Genlock and Tally signals to camera head, thus expanding the system capabilities of GFCAM™.

■ System Image



Film-like Production Support (Option)

Optional 23.98p, 25p and 20.97p recording and Film-like Gamma is available for supporting Film-like production of Commercial Video, Drama and Electronic Cinematography material.

Optional Accessories

Fiber Camera Adaptor FE-C100A/FE-C10 | Base Station FE-B100A/FE-B10 | Remote Control Box RCP-50B | Remote Control Unit RM-51A | 9-inch Viewfinder VFL-900HA

3.5-inch Color LCD Monitor

Employs 3.5-inch Color LCD Screen to indicate setup status, Thumbnail pictures and playback video.

Status Page : Recording Standby

Status Page : Playback


Thumbnail Page

Shot Mark and Check Mark Function

Simple "Cuts Type" editing may be performed in the camera by marking IN & OUT points on recorded clips, and merging these edited clips onto a user defined "PLAYLIST". Clips may also be "Check Marked" at will and then filtered as such later for easy viewing or editing.

Shot Mark Browse Function

Shot Mark Points added to recording / playback video can be displayed as a thumbnail icons. Marked points can be playback easily and immediately.

USB2.0 Interface

The camera's USB 2.0 interface has many functions. Metadata such as record date, location, photographer name, program name and/or camera number can be input, and Proxy Video (Option) can be exported to an external memory device. Moreover, all of camera firmware can be updated from USB Memory.

Quick Browse Function

By using the Rotary Encoder on the camera front panel, Jog Dial like playback control is possible. In accordance with footage length, 1 frame through 30 minutes of playback control is available*. Midway of footage can bee accessed immediately. And the Cue point can be set accurately.

*15 Frame minimum at Long GOP mode


Rotary Encoder

PLAYLIST Editing/Playback Function

By marking IN/OUT points, each clip can be registered for a selected PLAYLIST. Upon completion of a PLAYLIST, IN/OUT points can be changed. Afterwards, the completed PLAYLIST can be edited and played back by the GFSTATION™ or an NLE.


PLAYLIST Main Page


IN/OUT Point Marking Page


IN/OUT Point Editing Page

Salvage Function

In case of clip data damaged by unexpected power off etc., a SALVAGE function is available to rebuild the clip database with minimum loss of recorded material.

*Salvage may not be available if data damage is serious.

Open and User Friendly Editing Interface

Direct Connection with Non-linear Editor (NLE)

GFPAK™ employs universal interfaces, both USB2.0 and SATA (Serial Advanced Technology Attachment) for PC connection. No special docking adapter is necessary for direct connection of the GFPAK™ to an NLE as a mounted drive. High speed access of a GFPAK™ is achieved via these interfaces for direct editing without the need to copy recorded material to local storage.

Open Format

GF series products use the open compression format MPEG-2 LONG GOP 50Mbps & I frame only 100Mbps with popular MXF File Format. Utilization of these popular compression formats allows for fast and easy integration of GF recordings to popular NLE platforms without the need for time consuming file conversions.

Media Asset Management

Media Asset Management can be achieved with the GF MediaManager software. The logging of GFPAK™ S/No., recorded clips and Metadata (photographer name, shooting location and date etc.), as well as copying of recorded material between the GFPAK™ and external storage is easily and efficiently achieved.

■ Rating / Performance

Power Consumption	Camera 40W *1 VF 5W *1
Operating Temperature	-5 ~ +40 ℃
Guaranteed Temperature	0 ~ +40 ℃
Storage Temperature	-20 ~ +60 ℃
Operating Humidity	10 ~ 80% (Without Condensation)
Dimensions	130 x 215 x 310mm (W/H/D, Except Protruding)
Weight	4.5kg (Camera Head)

■Capturing Portion

Image Sensor	2/3-inch 2,300,000 Pixel, 3x AIT CCD (1920 x 1080 Effective Pixel) 2/3-inch 1,000,000 Pixel, 3x IT CCD (1280 x 720 Effective Pixel)
Optical Filter	CC: 3200K, 4300K, 6300K, CROSS ND: CLEAR, 25%, 6.3%, 1.6%
Scanning System	1080 59.94i/50i [23.98P/25P/29.97P(Option)] [480i, 576i available with Format Converter] 720 59.94P/50P [29.97P/25P(Option)]
Scanning Frequency	50Hz/59.94Hz (Customer' s choice at the order / Switchable: Option)
Limiting Resolution	1000TVL (1080i Version) / 700TVL (720p Version)
Sensitivity	F11 / 2000lx
S/N Ratio	58dB (1080i Version) / 56dB (720p Version)
Gain-up	-6(Option), -3, 0, +3, +6, +9, +12, +18, +24, +30, +42, +54dB
Electric Color Temperature	3200K / 5600K
Electric Shutter	Preset Shutter: 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000 Variable Shutter: 1080/59.94i: 1/63.4 ~ 1/1980 1080/50i: 1/52.9 ~ 1/1650 720/50p: 1/51.3 ~ 1/2080 720/60p: 1/61.5 ~ 1/2490
Function	CCD Frame Accumulation

■Interface

●Input	
Timecode(TC)	SMPTE 12M 2.0Vp-p
Video Signal	SDI (HD/SD)1ch / Composite: Future Option (Except for EU market)
External Sync(GL)	BBS 0.45Vp-p, ±6dB or Tri-level Sync 0.6Vp-p ±6dB BNC 75Ω 1ch
Audio Signal	4ch (Selectable from Front Microphone, REAR-1, REAR-2, Unislot) Front Microphone: Stereo (Standard), Monaural: Option
Front Microphone	-60/-40dBu (Menu Selection) +48V Phantom ON/OFF (Menu Selection) XLR 5-pin [3-pin (Monaural 3-pin: Option]
REAR-1, REAR-2	LINE/MIC/MIC/+48V selectable LINE: 0 / +4dBu (Menu Selection) MIC: -60 / -40dBu (Menu Selection) MIC+48V:Phantom+48V -60 / -40dBu (Menu Selection) XLR 3pin 2ch
Unislot	-40dBu D-SUB 25 pin
●Output	
SDI	HD: SMPTE 292M Conformity SD: SMPTE 259M Conformity From BNC Connector from Camera Head / Supports Embedded Audio
Monitor	1Vp-p 75Ω Composite or SDI(HD/SD) *2 From BNC Connector on Camera Head
DC	+12V (11 ~ 17V), 1A Current Typical
Earphone	Mini-Jack Type 1ch
TC	SMPTE 12M 2.0Vp-p
Power for Light	+12V (+11 ~ +17V), Available at Battery Operation
USB	1ch (Host, Conforming USB2.0)
VF Video	1Vp-p 75Ω, Y(PB PR)/RET Selectable To VF Connector (PB PR) is output only for Color Viewfinder
Audio	Outputs CH1, CH2 or CH3, CH4 selected 0 / +4dBu 1ch, Outputs to XLR Connector on Camera

*1 Target Spec. *2 Default: SDI / HD or SD: Menu Selection

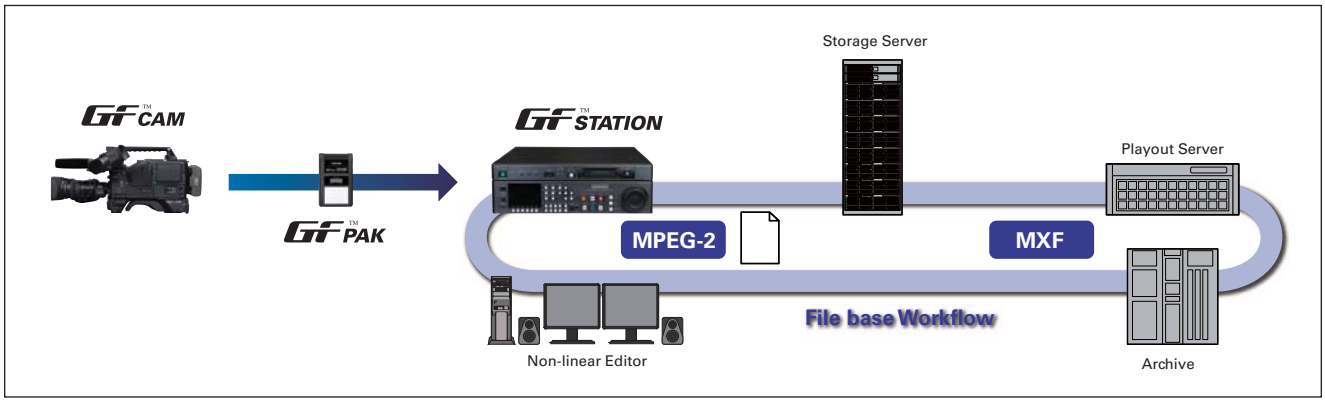
■ GF™ SERIES

Flash Memory Pack
GF™ PAK

Flash Memory Recorder
GF™ STATION

Portable Flash Memory Recorder
GF™ STATION PORTABLE

Portable Flash Memory Player
GF™ PLAYER



Design and specifications are subject to change without notice.

Ikegami Tsushinki Co.,Ltd. ■URL:http://www.ikegami.co.jp/en/

■ Head Office
5-6-16 Ikegami, Ohta-ku, Tokyo 146-8567, Japan TEL.03-5700-1111/FAX.03-5700-1137

■ Overseas Sales Division
5-6-16 Ikegami, Ohta-ku, Tokyo 146-8567, Japan TEL.03-5700-4114/FAX.03-5748-2200

Ikegami Electronics (Europe) GmbH ■URL:http://www.ikegami.de

■ Headquarters
Ikegami Strasse 1, D-41460 Neuss, Germany TEL.02131-1230/FAX. 02131-102820

■ U.K. Branch
Unit E1 Cologne Court, Brooklands Close, Windmill Road, Sunbury-on-Thames, Middlesex TW16 7EB, England TEL.01932-769700/FAX.01932-769710

■ Denmark Office
Horkær 7-9, 2730 Herlev, Denmark TEL.3880-9903/FAX.3881-9903

H168A095-HA6 Printed in Japan